Part No. N0013605 02.01
May 24, 2006

Business Communications Manager

Call Detail Recording System Administration Guide

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Getting Started

Your Business Communications Manager telephone system has many features that you can customize to keep up with changes in your workplace.

This guide provides information about how to program a Business Communications Manager telephone. This information includes items such as programming personal speed dials, transferring a call, and using special features. Some of the features included in the Business Communications Manager telephone system are, conference calls, group listening, group pickup, directed pickup, and call tracking.

This guide is aimed at the day to day operators of the Business Communications Manager telephone system.

Before you begin

Plan the programming changes you want to make before you begin. Record the changes so that you have the information at hand. For example, before you program system speed dial numbers, create a record so that you have all the numbers and codes available.

Programming applies to both North America and International telephones in your Business Communications Manager system.

Emergency 911 Dialing

Emergency 911 Dialing is the capability to access a public emergency response system.

State and local requirements for support of Emergency 911 Dialing service by Customer Premises Equipment vary. Ask your local telecommunications service provider about compliance with applicable laws and regulations.

Emergency 911 Dialing may not apply to International systems.

Text conventions

This guide uses the following text conventions:

Bold	Is used to highlight a programming level within the Unified Manager menu. Example: **ALL** report type.
italic text	Indicates new terms and book titles. Example: *Business Communications Manager Installation and Maintenance Guide*.
`Forward slash /`	Separates names where two actions are assigned to one button. Example: `MM/DD/YY`.

Acronyms

This guide uses the following acronyms:

AL	Alarm
AOCE	Advice of charges at end of call
ASM	Analog Station Module
ATA	Analog Terminal Adapter
BRI	Basic rate interface
CDR	Call Detail Recording
CFAC	Call Forward all Calls
CFB	Call Forward Busy
CFNA	Call Forward No Answer
CLASS	Custom Local Area Signalling Service
CLID	Calling Line Identification
CMS	Call Management Services
DID	Direct inward dial
DISA	Direct inward system access
DN	Directory number
DND	Do not disturb
DNIS	Dialed Number Identification Services
DRT	Delayed Ring Transfer
ERC	Express routing code
ETSI	European Telecommunications Standards Institute
HS	Hospitality services

IP	Internet Protocol
ISDN	Integrated Services Digital Network
ISO	International Organization for Standardization
KB	Kilobyte
LAN	Local Area Network
MB	Megabyte
PC	Personal computer
PBX	Private branch exchange
PIN	Personal Identification Number
PRI	Primary Rate Interface
RC	Room condition
RO	Room occupancy
SLR	Selective line redirection
URL	Uniform Resource Locator
WAN	Wide Area Network

Related publications

For more information about using Business Communications Manager, refer to the following publications:

- *Programming Operations Guide*
  This document provides more information about using Unified Manager.

Chapter 1
Introduction

The Nortel Networks Business Communications Manager Call Detail Recording is an application that records and reports call activity. Each time a telephone call is made to or from your company, you can record the information about the call. When the call is completed, you can print information about the call in a report. Call Detail Recording also provides information on incoming calls as the events occur. This information appears in a Real Time Call record.

About Call Detail Recording

Call Detail Recording provides information about

- date and time of the call, and digits dialed
- the originating and the terminating line or station set
- whether an incoming call was answered
- elapsed time between origin of a call and when it was answered
- whether a call was transferred or put on hold
- call duration
- call charges
- calls associated with Account codes
- incoming call Calling Line Identification (CLID) information
- Bearer Capability of the line in the call
- Hospitality records for room occupancy status
- Real Time records for ringing, DNIS, answered, unanswered, transferred, and released events for incoming calls with CLID information and Hospitality room occupancy status

Note: Call Detail Recording delivers Custom Local Area Signalling Services (CLASS), Call Management Services (CMS), Automatic Number Identification, and Dialed Number Identification Services (DNIS) in the form of CLID reports. Contact your customer service representative for more information.

You can use information collected by Call Detail Recording to

- allocate telephone costs to departments or individuals
- charge back telephone costs to billable clients through Account codes
- determine whether the telephone system is being used efficiently
- guard against abuse of the telephone system
- provide immediate call information to database applications through Real Time call records
- track changes in room occupancy status

Your role as System Administrator

As System Administrator, you perform the initial and ongoing administration tasks. Your tasks include:

- administering Call Detail Recording
- determining Account codes used as references for tracking telephone calls
- interpreting reports

Warning: SECURITY ALERT: Call Detail Recording provides information such as the date and time of the call, digits dialed, incoming call information and call time elapsed. This includes sensitive and personal information such as telephone banking numbers, credit card numbers and personal identification numbers. Digits dialed are not maintained as confidential.

As System Administrator it is solely your responsibility to advise the system users that their telephone dialing information can be monitored and recorded.

Further, LAN-based access to call records (passive or real time) demands a greater emphasis on call record security. Limitations and security arrangements can vary depending on the network environment and how the customer administers and limits access to the call records. Consult with the appropriate members of your organization regarding the proper safeguards.

Chapter 2
Configuring Call Detail Recording

Call Detail Recording uses configuration parameters to specify the kinds of calls to be reported as well as the report type and format. Each parameter can be changed at any time.

This chapter describes how to:

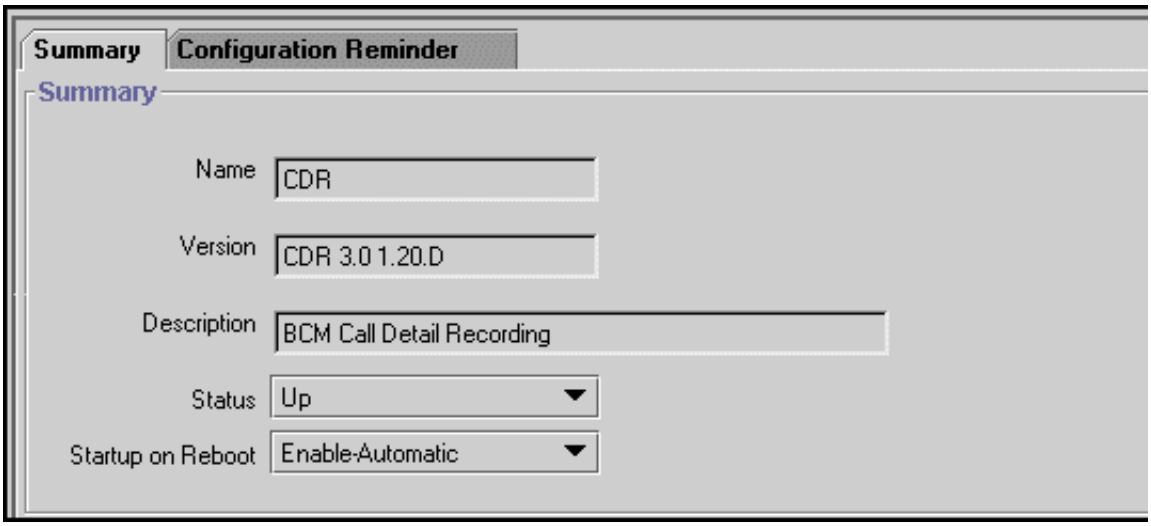
- "Configuring the Call Detail Recording Summary parameters" on page 18
- "Configuring the Report Parameters" on page 19
- "Configuring the Report Options" on page 24
- "Configuring the Market Parameters" on page 29
- "Configuring the Prefix Bin Settings" on page 31
- "Configuring the Access Bin Settings" on page 32
- "Saving configuration changes" on page 33
- "Using the Configuration menu" on page 34
- "Data File Transfer" on page 38

Configuring the Call Detail Recording Summary parameters

1 Open Business Communications Manager Unified Manager.

2 On the navigation tree, click the **Services** key and click the **Call Detail Recording** heading. The Summary window appears.

Figure 1 The Summary window



3 Configure the Summary parameters according to the following table.

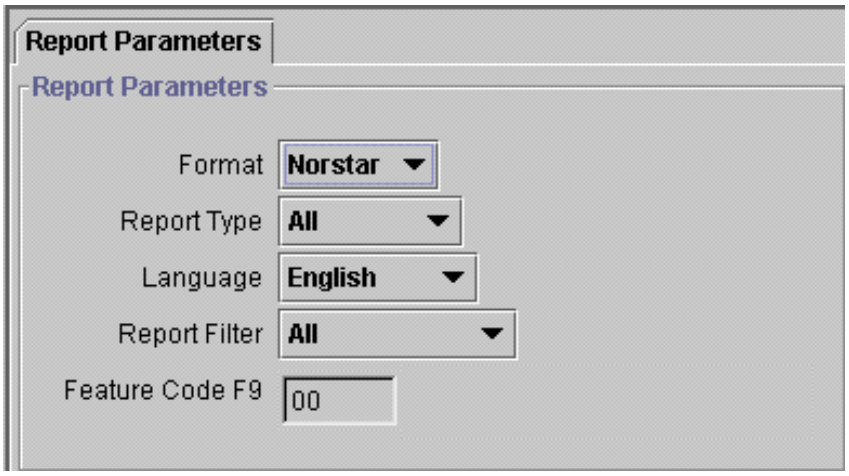
Table 1 Summary window parameters

Setting	Description
Name	Displays the name of the Call Detail Recording service.
Version	Displays the software version of the Call Detail Recording service.
Description	Displays a description of the Call Detail Recording service.
Status	Allows you to view and change the operating status of the Call Detail Recording service. The status can be Up or Down. To change the Status, click the **Status** drop list and select one of the following options. Select **Up** to enable the Call Detail Recording service. Select **Down** to disable the Call Detail Recording service.
Startup on Reboot	Allows you to set whether the Call Detail Recording service starts automatically when the Business Communications Manager system is rebooted. To change **Startup on Reboot**, click the drop list and select one of the following options. Select **Enable-Automatic** if you want the Call Detail Recording service to start up automatically when the Business Communications Manager system is rebooted. Select **Enable-Manual** if you want to manually start the Call Detail Recording service when the Business Communications Manager system is rebooted. Select **Disable** if you want the Call Detail Recording service to be disabled when the Business Communications Manager system is rebooted.

Configuring the Report Parameters

Click the **Report Parameters** heading to display the Report Parameters window.

Figure 2 The Report Parameters window



The following table shows the parameters you can configure using the Report Parameters window.

Table 2 Report Parameters

Parameter	Options
Format	SL-1 Norstar
Report Type	SL-1 Standard SL-1 CLID Norstar Standard Norstar CLID Norstar Real Time Norstar All
Language	English French Danish Swedish Dutch Spanish German Italian Norwegian
Report Filter	All Outgoing Prefix Account Code
Feature Code F9	F900-999

Report formats and types

Call Detail Recording generates both Norstar and SL-1 report types. SL-1 offers two report formats: Standard and CLID. Norstar offers four report formats: Standard, CLID, Real Time and All.

Note: The Report format default is SL-1. The Report type default is Standard.

SL-1 reports

Use the SL-1 report format when you are supplying the Call Detail Recording output to legacy commercial call accounting packages or equipment.

This report format supports recording Standard report type as well as the Calling Line Identification (CLID) report type.

The SL-1 CLID report prints the CLID information only if the information is delivered. Otherwise, it records the call in SL-1 Standard report type.

The SL-1 report format does not support the recording of Bearer Capability and DDI Busy reports.

Note: For more information about SL-1 reports, refer to "SL-1 reports" on page 45.

Assign the SL-1 report type

From the Report Parameters window, you can assign the SL-1 report type as Standard or CLID.

To assign or change Report Parameters:

1. On the navigation tree, click the **Services** key and click the **Call Detail Recording** key.
2. Click the **Report Parameters** heading.
   The Report Parameters window opens.
3. In the **Format** list box, select **SL-1**.
4. In the **Report Type** list box, select **Standard** or **CLID**.

Note: Call Detail Recording reports only the CLID Information for lines that are capable of delivering CLID. Calls on non-CLID capable lines are reported in SL-1 Standard report format.

Norstar reports

Use the Norstar report format for more detailed and concise call reports.

Note: For more information about Norstar reports, refer to "Norstar reports" on page 50.

Assign the Norstar report type

From the Report Parameters window, you can assign the Norstar report type as Standard, CLID, Real Time or All.

To assign or change Report Parameters:

1. On the navigation tree, click the **Services** key and click the **Call Detail Recording** key.
2. Click the **Report Parameters** heading.
   The Report Parameters window opens.
3. In the **Format** list box, select **Norstar**.
4. In the **Report Type** list box, select **Standard**, **CLID**, **Real Time** or **All**.

Report Language

If your Business Communications Manager server supports other languages, select either English or one of the alternate languages. The Report Language default is English.

To assign or change the Report Language:

1. On the navigation tree, click the **Services** key and click the **Call Detail Recording** key.
2. Click the **Report Parameters** heading.
   The Report Language window opens.
3. From the **Report Language** list box, select **English** or an alternate language.

Note: The Report Language you select only affects Call Detail Recording reports. The language assigned to each telephone determines the language used in the Account codes.

Report Filter

The Report Filter option allows you to specify the type of calls to be collected. The following table describes the options available.

Table 3 Report Filter options

Report Filter option	Description
All	Call Detail Recording reports all incoming and outgoing calls.
Outgoing	Call Detail Recording only reports on outgoing calls. Incoming calls are not reported.
Prefix	Call Detail Recording reports calls matching the pre-determined long distance digit strings. The purpose of the Prefix option is to report only long distance calls, calls to certain area codes or calls to specific numbers. If you select the Prefix Report filter, you must also specify the prefix digits. If the first digits dialed match one or more of the programmable prefix strings, the call is reported, otherwise the call is not reported. You can have a maximum of eight prefix strings assigned at one time. The maximum length for each prefix string is eight digits. **Note**: The Prefix filter defaults are 0, 1, 90, 91, 411 and 9411. Invalid Password attempts are reported regardless of the Report Filter selected.
Account codes	Call Detail Recording reports only calls with account codes associated with them.

Only one of the above reports can be selected at a time. The Report Filter default is All and can be Account Code

To assign or change a Report Filter:

1. On the navigation tree, click the **Services** key and click the **Call Detail Recording** key.
2. Click the **Report Parameters** heading.
   The Report Parameters window opens.
3. In the **Report Filter** option, select **All**, **Outgoing**, **Prefix** or **Account Code**.
4. Click the **OK** button.

Account Code Feature Code

Account Codes allow you to cross-reference telephone calls from your company to different clients or for telephone activities.

Before Account Codes can be entered by users, a Feature Code must be established. This Feature Code is any number between 900 and 999 and ranges from one to 12 digits long. The Feature Code default is the first available Feature Code from the Business Communications Manager server (usually 900).

View or modify the Feature Code from the Call Detail Recording Report Parameters window.

To assign or change the Feature Code:

1 On the navigation tree, click the **Services** key and click the **Call Detail Recording** key.

2 Click the **Report Parameters** heading.
The Report Parameters window opens.

3 In the **Feature Code** box, enter any number between 00 and 99. The first digit (9) is provided.

The appropriate Account Code is now available to all users making billable calls.

Account Code list

Account Codes create a reference for tracking telephone calls. For example, a user contacting a billable client enters an assigned code each time a call is placed to that client.

Account codes consist of a Feature Code (F9--) and an account number. The account number can have a maximum of 12 digits but cannot contain symbols such as (*) or (#). The following table gives an example of an Account Code list.

Table 4 Sample Account Codes

Account code	Description
11127	Pat
37	Field Support
239	Liza
45	Roger
1552	Monique
53	Modern Ways Limited
100	Long distance

Note: Remember to provide your colleagues with the Call Detail Recording Feature Codes and the Account Code list.

Using Account Codes

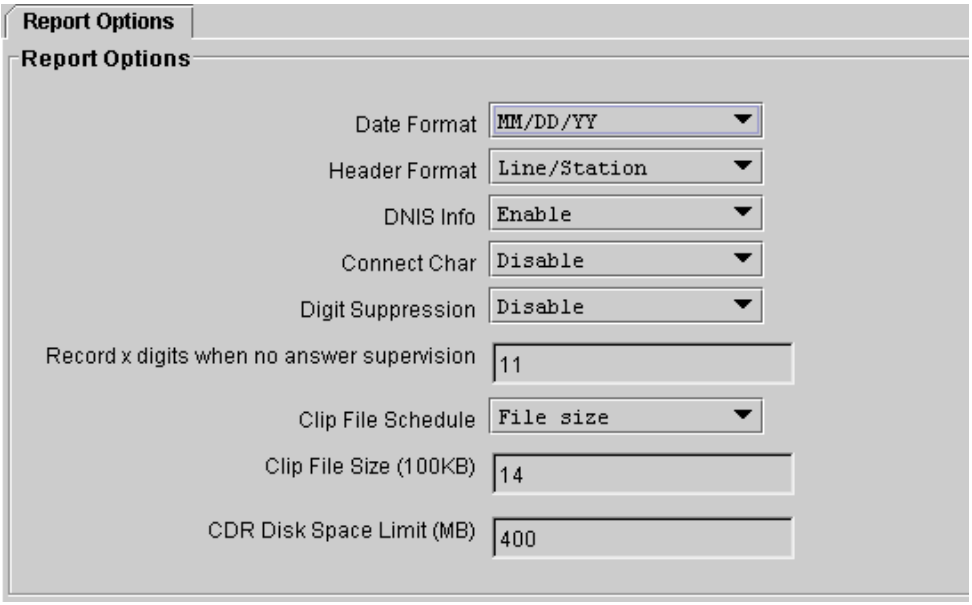
You can associate Account Codes with any incoming or outgoing calls. To assign an Account Code from any Business Communications Manager telephone, enter the Feature Code (F9--) followed by the account number.

You can enter an Account Code any time during a call. However, you cannot enter the Account Code when a call is on hold or when a configuration session is in progress.

Configuring the Report Options

Click the **Report Options** heading to display the Report Options window.

Figure 3 The Report Options window



The following table shows the parameters you can configure using the Report Options window.

Table 5 Report Options parameters

Date Format	MM/DD/YY	DD/MM/YY	YY/MM/DD	
Header Format	Line/Station	Source/Destination		
DNIS Info	Disable	Enable		
Connect Char	Disable	Enable		
Digit Suppression	Disable	Enable		
Unsupervised Lines Suppressed After 'x' Digits	11	3 to 24		
Clip File Schedule	Daily	Weekly	Monthly	File size
File size (100KB)	14 (1,400 KB)	10 to 50		
Disk Space Limit	400 (MB)	2 to 800		

Caution: Some of the above parameters are market specific. If the parameter value does not match the trunk property, Call Detail Recording can produce incorrect reports. If you are using a Call Accounting package to process reports, consult your software vendor before you make any changes. File size is used only when this option is selected in the Clip File Schedule.

Date Format

The Date Format includes the day, month and year. There are three date formats. Select one of the following:

- MM/DD/YY
- DD/MM/YY
- YY/MM/DD

The default Date Format is MM/DD/YY. This parameter affects only the Norstar Record Format. It is intended to provide market compatibility.

To assign or change the Date Format:

1. On the navigation tree, click the **Services** key and click the **Call Detail Recording** key.
2. Click the **Report Options** heading.
   The Report Options window opens.
3. In the **Date Format** list box, select **MM/DD/YY**, **DD/MM/YY** or **YY/MM/DD**.

Header Format

There are two kinds of Header Format. Select one of the following:

- Line/Station
- Source/Destination

The Header Format default is Line/Station. This parameter applies to the Norstar Record Format only.

The Line/Station format always reports the line number followed by the station number. The Source/Destination format always reports the number placing the call followed by the number receiving the call. Incoming calls are reported in the Line/Station format. Outgoing calls are reported in the Station/Line format.

To assign or change the Header Format:

1. On the navigation tree, click the **Services** key and click the **Call Detail Recording** key.
2. Click the **Report Options** heading.
   The Report Options window opens.
3. In the **Header Format** list box, select **Line/Station** or **Source/Destination**.

DNIS Info

The Dialed Number Identification Service (DNIS) provides the number the caller dialed to reach the Business Communications Manager system.

You can enable or disable the DNIS Info parameter. The DNIS Info default is Enabled. This parameter applies to the Norstar Record Format only. Not all trunks support DNIS.

To enable or disable the DNIS Info options:

1. On the navigation tree, click the **Services** key and click the **Call Detail Recording** key.
2. Click the **Report Options** heading.
   The Report Options window opens.
3. In the **DNIS Info** list box, select **Enable** or **Disable**.

Connect Char (Characters)

Normally, Call Detail Recording reports all the digits the user dialed to connect a call. The digits can include digits responding to prompts from an Auto-attendant, extension transfer or voice mail service. To distinguish between digits dialed to connect the call and digits dialed after the call is connected, you can insert an "!" between the two sets of digits.

You can enable or disable the Connect Char parameter. The Connect Char default is Disabled.

To enable or disable the **Connect Char** options:

1. On the navigation tree, click the **Services** key and click the **Call Detail Recording** key.
2. Click the **Report Options** heading.
   The Report Options window opens.
3. In the **Connect Char** list box, select **Enable** or **Disable**.

Note: Some of the Report Options parameters are market specific. If the parameter value does not match the trunk property, Call Detail Recording can produce incorrect reports. If you are using a Call Accounting package to process reports, consult your software vendor before you make any changes.

Digit Suppression

By default, Call Detail Recording stores all of the digits dialed, even after the call has been answered. This includes any personal information dialed, such as account numbers, credit card numbers or PINs. You can use the Digit Suppression feature to stop Call Detail Recording from storing digits after the call has been answered.

To configure the Digit Suppression feature, use the **Digit Suppression** and **Unsupervised Lines Suppressed After 'x' Digits** options on the Report Options window. The **Digit Suppression** option allows you to enable or disable this feature. The **Unsupervised Lines Suppressed After 'x' Digits** option allows to specify the maximum number of digits that Call Detail Recording stores.

The list below describes how the Digit Suppression feature operates.

- **Digit Suppression is Disabled**
  Call Detail Recording records all of the digits dialed.
  Line Supervision and the Unsupervised Lines Suppressed After 'x' Digits options have no affect when Digit Suppression is disabled.
- **Digit Suppression is Enabled and Line Supervision is available on the line used**
  Call Detail Recording records the telephone number dialed, but stops recording when the Line Supervision feature indicates that the call has been answered.
  The Unsupervised Lines Suppressed After 'x' Digits option has no affect when Line Supervision is available on the line used.
- **Digit Suppression is Enabled and Line Supervision is not available on the line used**
  Call Detail Recording records the digits dialed until it reaches the number entered in the Unsupervised Lines Suppressed After 'x' Digits box. After this number of digits has been recorded, Call Detail Recording stops recording digits.

To configure the Digit Suppression feature:

1. On the navigation tree, click the **Services** key and click the **Call Detail Recording** key.
2. Click the **Report Options** heading.
   The Report Options window opens.
3. In the **Digit Suppression** list box, select **Enable** or **Disable**.
   The default value for this option is Disable.
4. In the **Unsupervised Lines Suppressed After 'x' Digits** box, enter the maximum number of digits that Call Detail Recording stores. You can enter a value from 3 to 24. The default value is 11.

Clip File Schedule

By default, the Business Communications Manager server clips the data files when the file size reaches the maximum of 1,400 kilobytes (KB). You can change the file schedule to clip at regular intervals. The Clip File Schedule options are:

- daily: at midnight
- weekly: Sunday at midnight
- monthly: the first day of each month at midnight
- file size: from 1,000 KB and 5,000 KB
- On File Transfer: when the files are transferred

File size

Data file size limit for clipping is changeable. File size ranges from 10 (1,000 KB) to 50 (5,000 KB).

Note: The File size parameter is not used when a regular interval is assigned, but only when the Clip file Schedule option is selected.

CDR Disk Space limit

The minimum disk space requirement for Call Detail Recording is 2 MB. The default is 400 MB. Available disk space is verified when the service starts and when files are clipped.

When the minimum amount of disk space is available automatic file deletion occurs, beginning with the oldest file. Files are deleted until 20% space is made available. For example, if the disk size is assigned as 400 MB, Call Detail Recording deletes old files until 320 MB of space is available.

Configuring the Market Parameters

There are seven Market Parameters. The seven Market Parameters are described in the following table.

Table 6 Market Parameters

Market Parameter	Description
CLID with Name	Call Detail Recording reports the CLID name of each call. You can enabled or disabled this parameter at any time. The CLID with Name default setting is Enabled. This parameter applies to the Norstar Record Format only. Not all trunks support Name CLID.
Long CLID Support	Call Detail Recording supports long CLID digit reporting. The Long CLID Support default setting is Disabled. This parameter is market specific. Do not change the default unless the trunk supports this feature.
CLID with Call Type	Call Detail Recording supports long distance or unknown call types. The CLID with Call Type default setting is Enabled. This parameter applies to the Norstar Record Format only. Do not change the default unless the trunk supports this feature.
Support Call Charge	Call Detail Recording supports charges on calls. The Support Call Charge default setting is Disabled. This parameter is market specific. Do not change the default unless the trunk supports this feature.
Answer Supervision	Call Detail Recording identifies the telephone number answering outgoing calls. The Answer Supervision default setting is Disabled. This parameter is market specific. Do not change the default unless the trunk supports this feature.
Call Filter Duration	Call Detail Recording reports the length of all outgoing call connections. The Call Filter Duration default setting is 2 seconds. The duration range is zero to 30 seconds.
Hospitality Record	Call Detail Recording represents four states of room occupancy: vacant, basic, mid and full. Room number lengths range from one to five digits.

Click the **Market Parameters** heading to open the Market Parameters window.

Figure 4 The Market Parameters window

The following table shows the parameters you can configure using the Market Parameters window.

Table 7 The Market Parameters window parameters

CLID with Name	Long CLID Support	CLID with Call Type	Support Call Charge	Answer Supervision	Call Filter Duration	Hospitality Record
Disable	Disable	Disable	Disable	Disable	0-30 Sec.	Disable
Enable	Enable	Enable	Enable	Enable		Enable

Caution: Some of the Report Options parameters are market specific. If the parameter value does not match the trunk property, Call Detail Recording can produce incorrect reports. Changing the Market Parameters can affect some Access Bin Settings or Suppress Length Settings parameters. If you are using a Call Accounting package to process reports, consult your software vendor before you make any changes.

Assign or change Market Parameters

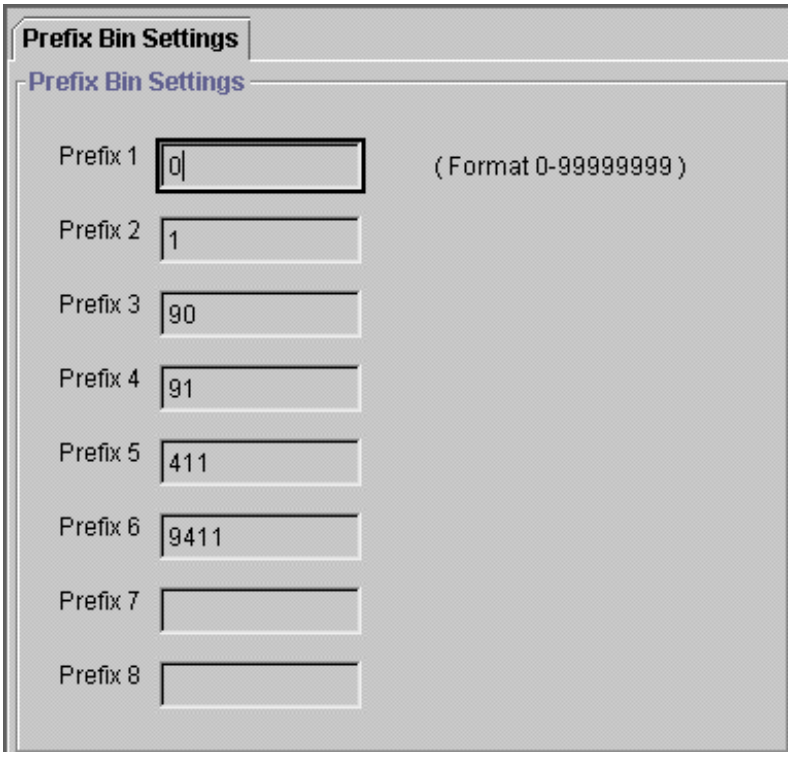
To assign or change the Market Parameters:

1. On the navigation tree, click the **Services** key and click the **Call Detail Recording** key.
2. Click the **Market Parameters** heading.
   The Market Parameters window opens.
3. From the **CLID With Name** list box, select **Enable** or **Disable**.
4. From the **Long CLID Support** list box, select **Enable** or **Disable**.
5. From the **CLID With Call Type** list box, select **Enable** or **Disable**.
6. From the **Support Call Charge** list box, select **Enable** or **Disable**.
7. From the **Answer Supervision** list box, select **Enable** or **Disable**.
8. In the **Call Filter Duration** box, enter a number between 0 and 30.
9. In the **Hospitality Record** box, select **Enable** or **Disable**.

Configuring the Prefix Bin Settings

Click the **Prefix Bin Settings** heading to open the Prefix Bin Settings window.

Figure 5 The Prefix Bin Settings window



Prefix filter

If you select the Prefix filter, you must also specify the prefix digits. The Prefix option allows you to monitor and report all long distance calls, calls to certain area codes or calls to specific numbers.

If the first digits dialed match one or more of the programmable prefix strings, the call is reported, otherwise the call is not reported. You can have a maximum of eight prefix strings assigned at one time. The maximum length for each prefix string is eight digits. The Prefix filter default settings are 0, 1, 90, 91, 411 and 9411.

Assign or change Prefix Bin Settings

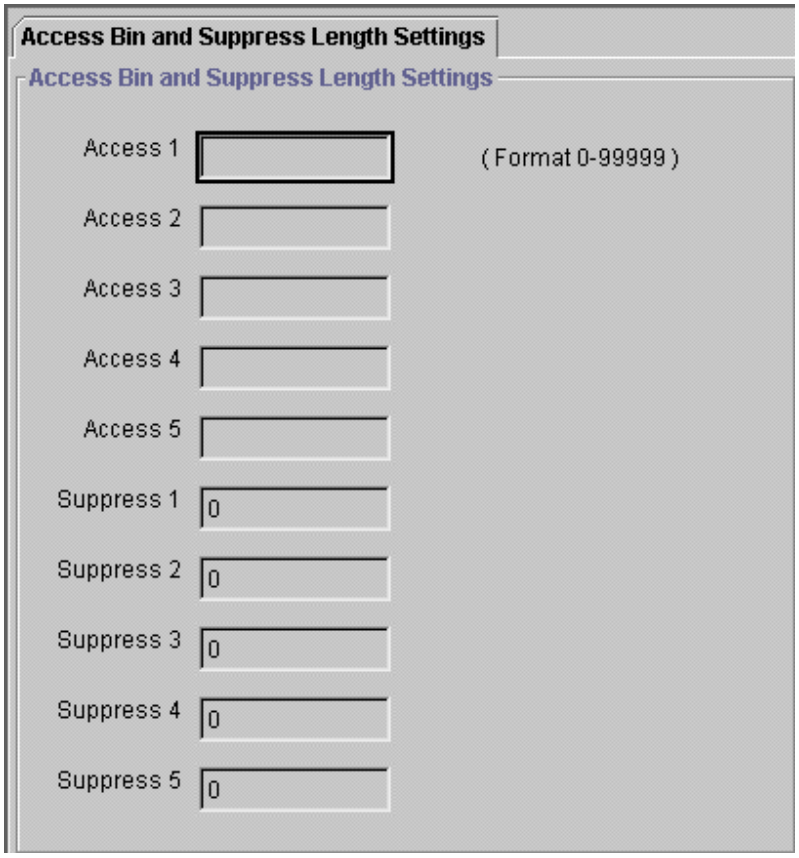
To assign or change a Prefix filter:

1. On the navigation tree, click the **Services** key and click the **Call Detail Recording** key.
2. Click the **Prefix Bin Settings** heading.
   The Prefix Bin Settings window opens.
3. In the **Prefix 1** list box, enter the prefix number.
4. In the **Prefix 2** through **Prefix 8** list boxes, enter the prefix numbers as required.

Configuring the Access Bin Settings

Click the **Access Bin Settings** heading to open the Access Bin Settings and Suppress Length Settings window.

Figure 6 The Access Bin Settings and Suppress Length Settings window



Use the Access Bin Settings window to configure parameters for Access Bin Settings 1 to 5 and Suppress Length Settings 1 to 5.

Access Bin Settings

Access Bin Settings codes are used to access certain long distance carriers. Personal Identification Numbers (PIN) can be associated with these codes. The long distance user dials the code of the carrier (up to five digits) followed by the PIN (0 to 16 digits), followed by the telephone number to make long distance calls. Access Bin Settings provide security to the long distance user by suppressing the printing of the PIN in the output reports.

Suppress Length Settings

You can have a maximum of five codes assigned at any one time. Each code is a maximum of five digits and can be associated with a suppression number equal to the length of the PIN. The first digits dialed are compared to the Access Bin Settings. If there is a match, the next digits are suppressed. The number of digits suppressed equals the value in the suppress field for that code. Only the Access Bin Settings numbers and the remaining digits (excluding the PIN) are printed in the output report.

Assign or change Access Bin Settings and Suppress Length Settings

To enter or change the Access Bin Settings:

1. On the navigation tree, click the **Services** key and click the **Call Detail Recording** key.
2. Click the **Access Bin Settings** heading.
   The Access Bin Settings Suppress Length Settings window opens.
3. In the **Access 1** list box, enter the access code.
4. In the **Access 2** through **Access 5** list boxes, enter the access code as required.

To enter or change the Suppress Length Settings:

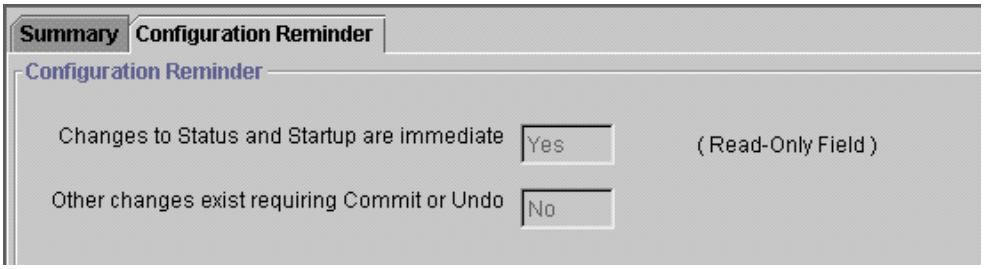
5. In the **Suppress 1** list box, enter the Suppression Setting.
6. In the **Suppress 2** through **Suppress 5** list boxes, enter the Suppression Setting as required.

Note: You can suppress a maximum of 16 digits following the Access Bin Settings.

Saving configuration changes

The Call Detail Recording Administration feature of Unified Manager enables you to maintain a copy of all options and parameters. When you complete the configurations and changes required to all parameters, follow the procedures below to save and implement them. Changes do not apply until you select the Commit option or reboot the system. When you click on Configuration in the menu bar, the Configuration reminder window shown in Figure 7 appears.

Figure 7 The Configuration reminder window



The Configuration reminder window updates automatically as changes are made to other parameters. Changes do not go into effect until Commit or Undo are assigned.

The following table shows the parameter you can configure using the Configuration reminder window.

Table 8 Configuration reminder window

Changes to Status and Startup are immediate	Other changes exist requiring Commit or Undo
Yes	Yes
	No

Note: In the Configuration Reminder window the 'Changes to Status and Startup are immediate' and 'Other changes exist requiring Commit or Undo' parameters are read-only fields.

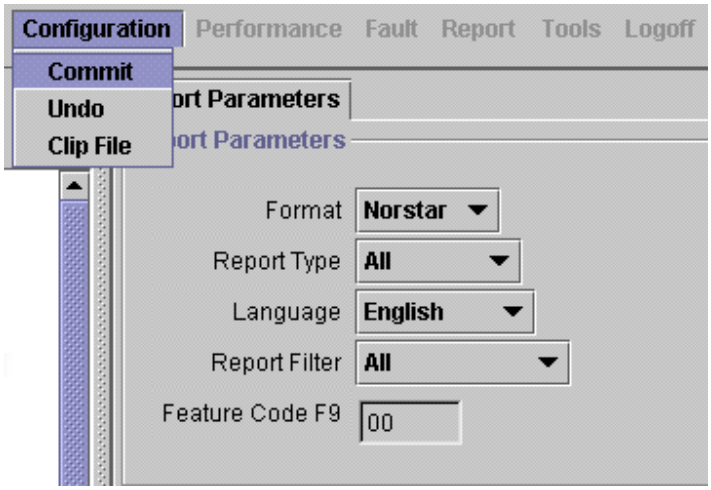
Using the Configuration menu

The Configuration menu is available from all of the Call Detail Recording Administration window. The three options under Configuration are: Commit, Undo and Clip File. Figure 8, Figure 9, and Figure 10 show the three Configuration option windows.

Configuration Commit

Call Detail Recording Administration maintains a copy of all options and parameters internally. Changes made are not applied until the Commit option is selected or the system reboots. Make the changes required to all parameters. When changes are complete, select Commit to apply the changes. Refer to Figure 8.

Figure 8 The Commit option window



Commit changes

To make and apply changes:

1 On the navigation tree, click the **Services** key and click the **Call Detail Recording** heading.

2 From the **Configuration** menu, choose **Commit**.

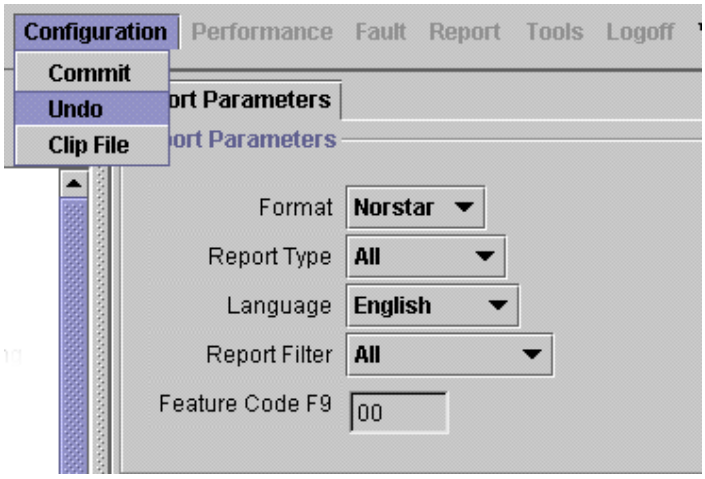
The Unified Manager applies changes to the parameters and generates a new header in the Call Detail Recording log file.

Note: Before you commit a change, the ‘Other changes exist requiring Commit or Undo’ parameter appears as Yes in the Configuration Reminder window. When you commit the change, the parameter automatically changes to No.

Configuration Undo

Call Detail Recording Administration maintains a copy of all options and parameters internally. Undo restores the settings to the last committed values. Refer to Figure 9 on page 36.

Figure 9 The Undo option window



Undo changes

To undo changes and restore previous values:

1 On the navigation tree, click the **Services** key and click the **Call Detail Recording** heading.

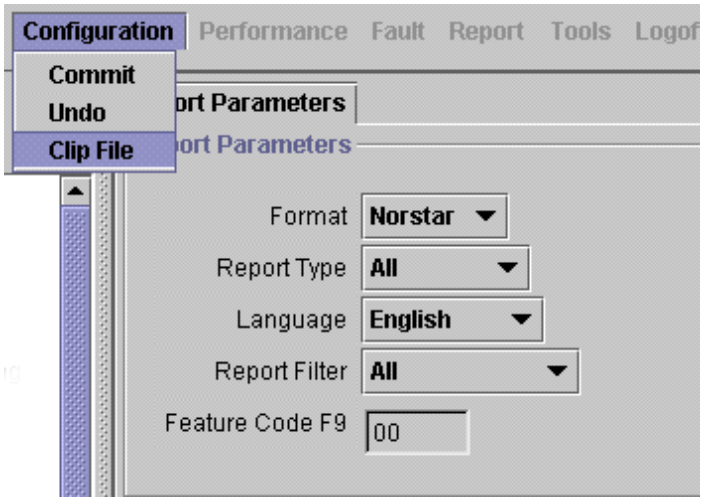
2 From the **Configuration** menu, choose **Undo**.
Previously committed values are restored.

Note: Before you commit a change, the ‘Other changes exist requiring Commit or Undo’ parameter appears as Yes in the Configuration Reminder window. When you commit the change, the parameter automatically changes to No.

Configuration Clip File

The current file log is not accessible when Call Detail Recording Service is running. Call Detail Recording Administration closes the current log file and creates a new log file with a new header. Refer to Figure 10 on page 37.

Figure 10 The Clip File option window



Clip File

To clip the file log:

1 On the navigation tree, click the **Services** key and click the **Call Detail Recording** heading.

2 From the **Configuration** menu, choose **Clip File**.

The format for the data file extension created is YYYYMMDDHHMMSS.

You can download these files using the Data File Transfer feature. For information about how to use the Data File Transfer feature, refer to "Data File Transfer" on page 38.

Data File Transfer

The Data File Transfer feature provides you with a method of transferring the Call Detail Recording files to a central server.

A typical application of the Data File Transfer feature is when a company with several branch offices wants to analyze the telephony traffic at its branch offices using the Call Detail Recording information. Without the Data File Transfer feature, someone at the central office has to access each branch office individually and down load the files before the analysis can be done. Using the Data File Transfer feature, the Call Detail Recording information is automatically transferred from all of the branch offices to a central server on a defined schedule.

This section provides information about:

- "Methods of Data File Transfer" on page 39
- "Features of Data File Transfer" on page 40
- "Central server requirements" on page 40
- "Scheduling the Push transfer of the Call Detail Recording information" on page 40
- "Transferring the Call Detail Recording information immediately" on page 43
- "Transferring the Data Files using a Pull transfer" on page 43

Methods of Data File Transfer

There are two methods you can use to transfer the Call Detail Recording files to a central server:

- Data File Push Transfer
- Data File Pull Transfer

Data File Push Transfer

When you use a Push Transfer, the Business Communications Manager system sends the Call Detail Recording data files to the central server. The advantage of the Push Transfer is that you configure the data transfer parameters on the Business Communications Manager system using Unified Manager. No additional applications are required. You can use the Push Transfer to send Call Detail Recording data files from any number of Business Communications Manager systems, but it is most beneficial when you are transferring from a smaller number of systems.

Data File Pull Transfer

When you use a Pull Transfer, an application running on the central server (the Central Client) downloads the Call Detail Recording data files from the Business Communications Manager system. When you use a Pull Transfer, you configure the data transfer parameters on the Central Client. The advantage of the Pull Transfer is that the central server determines the rate that the data files are transferred, so the central server cannot easily be overloaded with transfer information. You can use the Pull Transfer to transfer Call Detail Recording data files from any number of Business Communications Managers, but it is most beneficial when you are transferring from a large number of systems.

Security note: The Data File Pull Transfer uses a secure SSL interface to transfer the Call Detail Recording data files.

The Data File Push Transfer does not use a secure interface to transfer the Call Detail Recording data files.

Features of Data File Transfer

- You can schedule a data file transfer so that the Business Communications Manager system sends the data files on a regular basis (daily, weekly or monthly) and at a specified time.
- You can manually start the transfer of data files from the Business Communications Manager system when you need the Call Detail Recording information immediately.
- Business Communications Manager can compress the Call Detail Recording information to reduce the amount of time it takes to transfer the files.
- Business Communications Manager can automatically attempt to re-send the data if the initial data transfer fails.
- Only the files that have not been sent before are transferred.

Central server requirements

The server you are transferring the Call Detail Recording information to must have the following:

- an FTP Server application installed
- a Central Client can schedule and initiate Pull Transfers (for Pull Transfer only)
- a ZIP/UNZIP utility installed
- a username/password defined for use by the Business Communications Manager system that has the appropriate access for FTP transfer
- the FTP Server application is configured to receive connections from the desired Business Communications Manager systems
- write permissions are granted to the appropriate directories for putting the files transferred from the Business Communications Manager system
- a user account in the CDR Group on the Business Communications Manager system (for Pull Transfers only)

Scheduling the Push transfer of the Call Detail Recording information

You can schedule a Data File Push Transfer to occur on a regular basis. When you create the schedule, you need to specify:

- where the files are transferred to
- how often the transfer should occur
- on which day the transfer starts
- at what time the transfer starts

To schedule a transfer of the Call Detail Recording information:

1. On the navigation tree, click the **Services** key and click the **Call Detail Recording** key.
2. Click the **Data File Transfer** heading.
   The Data File Transfer screen appears.

3 Configure the Data File Transfer parameter according to the following table.

Table 9 Data File Transfer parameters

Setting	Description
Transfer Type	Allows you to select how often the Call Detail Recording information is sent to a central server. **Push-Daily** – The information is sent once a day at the time entered in the Transfer Time box. **Push-Weekly** – The information is sent once a week at the time entered in the Transfer Time box and the day entered in the Day of Week box. **Push-Monthly** – The information is sent once a month at the time entered in the Transfer Time box and the date entered in the Day of Month box. **Pull** – Sets the Business Communications Manager system in Pull mode, so that it will accept data file transfer requests from the central server. The Pull option is not used for scheduling a Data File Push Transfer. **None** – The files are not sent to a central server. The default for this parameter is **None**.
IP Address or Machine Name	Allows you to enter the IP address or Machine name of the central server to which you are sending the Call Detail Recording information. An IP address must be entered in the proper dotted format (for example, 10.10.10.1.) A machine name can be up to 47 characters long.
Remote User	Allows you to enter the FTP login user name that Business Communications Manager uses when connecting to the central server. The Remote User name must be the same as the user name you assigned to Business Communications Manager in the central server configuration. The Remote User name can be up to 47 characters. If you leave the **Remote User** box blank, the Business Communications Manager system uses the userid “anonymous” with no password to access the FTP server. **Security Note**: If you use the “anonymous” userid, there is no security provided for the Call Detail Recording files on the FTP server. Anyone who logs on to the FTP server with the “anonymous” userid can access your Call Detail Recording information.
Remote Password	Allows you to enter the FTP login password that Business Communications Manager uses when connecting to the central server. The Remote Password must be the same as the password you assigned to Business Communications Manager in the central server configuration. The Remote Password can be up to 47 characters.
Destination FTP Alias	Allows you to specify an FTP alias on the central server where the Call Detail Recording information is transferred. An example of a Destination FTP Alias is: **\Telephone_systems\Call_Records**. In the central server configuration, you must grant FTP writing permission on this location for the user name you entered in the Remote User box and the password you entered in the Remote Password box. The Destination FTP Alias can be up to 47 characters. **Note**: If you leave the **Destination FTP Alias** box blank, the Call Detail Recording files are transferred to the ftp home directory for that particular userid.
Number of Retries	Allows you to specify the number of times that Business Communications Manager attempts to send the Call Detail Recording information to the central server when a data file transfer fails. Enter a value from 0 to 10 as the Number of Retries. If you enter a value of 0, Business Communications Manager does not attempt to send the data again. The default for this parameter is 0.

Table 9 Data File Transfer parameters (Continued)

Setting	Description
Delete file after Transfer	Allows you to specify if the Call Detail Recording data files are deleted from the Business Communications Manager after the files are successfully transferred to the central server. Select **Yes** to delete the files after they are successfully sent. Select **No** to leave the files on the Business Communications Manager system. The default for this parameter is No.
Compress File before Transfer	Allows you to specify if the Call Detail Recording data files are compressed into one ZIP file before they are transferred to the central server. The name of the zip file created is *BCM machine name* + *year* (4 digits) + *month* (2 digits) + *day* (2 digits) + *hour* (2 digits) + *minute* (2 digits) + *second* (2 digits) + *.zip*. For example: SouthBCM20010915084522.zip. Select **Yes** to compress the files into a single ZIP file. Select **No** to send the files uncompressed. The default for this parameter is Yes.
Transfer Time	Allows you to specify the time of day when the Call Detail Recording files are transferred to the central server. Enter the time in hours and minutes according to the 24 hour clock (00:00 to 23:59). The default for this parameter is 00:00 (midnight). **Note**: The Transfer Time is based on the local time of the Business Communications Manager, not the time at the central server.
	Only one of the following three fields appears on the screen.
Transfer Day	This field appears when you select **Push-Daily** as the Transfer Type. This is a read only field that always displays Daily.
Day of Week	This field appears when you select **Push-Weekly** as the Transfer Type. Allows you to specify the day of the week when the transfer will occur. You can select Monday, Tuesday, Wednesday, Thursday, Friday, Saturday or Sunday. The default for this parameter is Monday.
Day of Month	This field appears when you select **Push-Monthly** as the Transfer Type. Allows you to specify the day of the month when the transfer will occur. You can enter a value from 1 to 31. The default for this parameter is 1. **Note**: If you enter 29, 30 or 31 for the Day of Month, the Call Detail Recording files will not be sent on some months. This occurs because some months do not contain these dates. For example, the month of February never has 30 or 31 days. If you want the files sent at the end of every month, use the default values for Transfer Time (00:00) and Day of Month (1).
Last Transfer Time	Displays the last time the Call Detail Recording data files were successfully sent to the central server.

Note: If you are transferring Call Detail Recording files from several Business Communications Manager systems to a single central server, Nortel Networks recommends that you stagger the time of the transfers so that the central server is not overloaded with too many requests.

Transferring the Call Detail Recording information immediately

When you transfer immediately, the Business Communications Manager system uses the information entered on the Data File Transfer screen, but sends the Call Detail Recording information immediately.

Note: The Transfer immediately option uses the Push method of Data File Transfer.

To transfer the Call Detail Recording information immediately:

1. On the navigation tree, click the **Services** key and click the **Call Detail Recording** key.
2. Click the **Data File Transfer** heading.
   The Data File Transfer screen appears.
3. Set the parameters on the Data File Transfer screen to specify the server to which the Call Detail Recording information is sent. For information about the parameters on this screen, refer to the table "Data File Transfer parameters" on page 41.

   Note: When using the Transfer Immediately option, the following fields are not used and can be ignored: **Transfer Type**, **Transfer Time**, **Transfer Day**, **Day of Week** and **Day of Month**.

4. On the **Configuration** menu, click **Transfer immediately**.
   The Business Communications Manager starts transferring Call Detail Recording information to the specified server.

Transferring the Data Files using a Pull transfer

To transfer Call Detail Recording data files using a Pull transfer, you must:

- Set up a Call Detail Recording user account on the Business Communications Manager system
- Set the Data Transfer type to Pull
- Configure the Central Client to start the transfer

Setting up the Call Detail Recording user account

To ensure the security of the Call Detail Recording data files, any user, including the Central Client, must use a special Call Detail Recording user account to access the directory where the files are stored. You must set up this user account on every Business Communications Manager system from which the Central Client will pull information.

To set up the Call Detail Recording user account:

1. On the navigation tree, click the **Management** key and click the **UserManager** heading.
   The User Profile screen appears.

2 On the **Configuration** menu, click **Add User**.
The User Profile dialog box appears.

3 In the **User Name** box, enter the user name for the Call Detail Recording user account.

4 In the **Password** box, enter the password for the Call Detail Recording user account.

5 In the **Confirm Password** box, enter the password again.

6 In the **Member Of** box, click **CDRUserGroup**.

7 Click the **Save** button.

Setting the Data Transfer type to Pull

You must set the Data Transfer type to Pull on every the Business Communications Manager system from which the Central Client will pull information.

To set the Data Transfer type to Pull:

1 Start Unified Manager.

2 Click the **Services** key and then click the **Call Detail Recording** key.

3 Click the **Data File Transfer** heading.
The Data File Transfer screen appears.

4 Click the **TransferType** drop list and then click **Pull**.
The Data File Transfer screen changes to display the current Call Detail Recording Pull statistics.

Note: To reset the Call Detail Recording Pull statistics, click the **Configuration** menu and then click **Reset CDR Pull Data**.

Configuring the Central Client

The Central Client is the application running on the central server that accesses the Business Communications Manager systems and downloads the Call Detail Recording data files.

The Central Client is typically a custom application that was created by your company or by an external vendor for your company. The advantage of a custom Central Client is that the application can be designed to work with your choice of operating systems and can be integrated with your existing databases. If you are using a custom Central Client, refer to the documentation that came with the Central Client for information about configuring the client.

If your company does not have or require a custom Central Client, a sample Central Client is included on the Business Communications Manager system. For information about how to install the sample Central Client, refer to "Install CDR Client application" on page 71. The sample Central Client, named CDR Pull Client, is installed at the same time the CDR Client is installed.

Chapter 3
Call Detail Recording Reports

Call Detail Recording provides two types of report:

- "SL-1 reports
- "Norstar reports

Report logs

Report logs reside in the Business Communications Manager Call Detail Recording LOG directory. Use logs for call accounting processing and call activity review.

To download report logs:

1. From the Unified Manager login window, enter the user ID and password.
2. From the **Tools** menu, select **Web Download**.
3. From the Call Detail Recording section, click the log file.
4. Save the log file to the designated directory.

SL-1 reports

Use the SL-1 report when the you are supplying the output to legacy commercial accounting package or equipment. SL-1 reports are in the form of one or two lines in ASCII characters.

This section describes the SL-1 reports and explains how to interpret them.

SL-1 report types

The Call Detail Recording supports two different SL-1 report types:

- "SL-1 Standard reports
- "SL-1 CLID reports

The SL-1 CLID format is similar to the SL-1 Standard format with the addition of CLID information. For lines that do not support CLID or when the Business Communications Manager server does not deliver CLID information, calls report in an SL-1 Standard report format.

SL-1 report field definitions

The following two tables show summaries of field definitions for SL-1 reports, line 1 and line 2.

Table 10 Field definitions for line 1

Column	Name	Format	Definition
1	RecType	Y	report type
2	Blank		Blank space
3-5	RecNo	XXX	report seq number
6	Blank		Blank space
7-8	CustNo	00	Customer number
9	Blank		Blank space
10-16	OrigID	TXXXXXX	Line number
		DNXXXX	STN number
		CF00001	Conference number
17	Blank		Blank space
18-24	TerID	TXXXXXX	Line number
		DNXXXX	STN number
25-37	Blank		Blank space
38-48	TimeStamp	MM/DD HH:MM	Time stamp
49	Blank		Blank space
50-57	Duration	HH:MM:SS	Call duration
58	Blank		Blank space
59-90	Digits	XXX...X	Dialed digits
50-61	AccCode	XXX...X	Account code (C report)

Table 11 Field definitions for line 2

Column	Name	Format	Definition
3-18	CLID	XXX...X	CLID number
11-15	AOCE	XXXXXX.XX	Call charges
11-15	Pulse Charge	nnnnn (00000-32767)	Pulse charge for the call. Valid only for ETSI ISDN lines which support AOCE.
17-22	Currency Charge	nnnnn (000000-999999)	Currency charge for the call. Valid only for DASS2 and ETSI ISDN lines which support AOCE.

SL-1 report options

Call Detail Recording generates the SL-1 report options using letter codes, as shown in the following table.

Table 12 SL-1 report options and letter codes

Letter code	Report option
I	Initialization report
N	Normal report
S	Start report
E	End report
A	Authorization report
C	Charge report
M	Conference Charge report

The I (Initialization) report option contains only the report type and time stamp. The S (Start) option, E (End) option, M (Conference charge) option, and C (Charge) option reports do not contain the duration field. The E (End) option report does not contain any dialed digits.

Note: The I report does not contain Call Information number; all other report types contain the Call Information number (if delivered).

SL-1 Standard reports

The following diagram shows an example of an outgoing call on line 52 from station set 7425.

Figure 11 Sample outgoing call

```
N 027 00 DN7425  T052000            04/04 14:03 00:01:32 5551212
```

The following diagram shows an example of an incoming call on line 47 to station set 2221.

Figure 12 Sample incoming call

```
N 028 00 T047000 DN2221             04/04 14:22 00:12:04
```

The following diagram shows an example of an outgoing call on line 38 from station set 7447 and transferred to station set 2221.

Figure 13 Sample call transfer

```
S 029 00 DN7447  T038000            04/04 15:02          8761344
E 030 00 T038000 DN2221             04/04 15:07
```

The following diagram shows an example of a two-line conference call with two outgoing calls.

Figure 14 Sample conference call

```
S 000 01 DN6545  T038000            04/04 12:23          9369552
E 001 01 CF0001  T038000            04/04 12:27
S 002 01 DN6789  T047000            04/04 12:23          8082635
E 003 01 CF0001  T047000            04/04 12:27
```

SL-1 CLID reports

The SL-1 CLID report consists of two lines. The CLID information, if available, appears in the third character position of the second line.

The CLID number is always 16 digits. Any missing numbers are represented by an “x.” If there is no CLID Information available then no CLID Information report is delivered.

The following diagram shows an example of an incoming call on line 38 to station set 2221 with CLID enabled. The CLID number available is 4037692000.

Figure 15 Sample incoming call with CLID

```
N 034 00 T038000 DN2221             04/04 15:32 00:10:24
  4037692000xxxxxx
```

The following diagram shows an example of an incoming call on line 37 to station set 2211 with Call Information enabled, and the CLID number is not available.

Figure 16 Sample incoming call with Call Information and without CLID

```
N 035 00 T037000 DN2211             04/04 14:22 00:12:04
```

The following diagram shows an example of an incoming call on line 38 to station set 7447 and transferred to station set 2223. Call Information is enabled, and the Call Information number available is 4032919001.

Figure 17 Sample incoming call transferred with Call Information available

```
S 029 00 T038000 DN7447             04/04 15:02
  4032919001xxxxxx
E 030 00 T038000 DN2223             04/04 15:07
  4032919001xxxxxx
```

SL-1 Target line/Physical lines

When Target lines are used on digital trunks, reports show both the target line number and the physical line number. The following diagram shows an example of an incoming call on target line 103 and transferred to another station set. The physical line is 37.

Figure 18 Sample target line transfer

```
S 029 00 T037103 DN7499              04/04  15:02
E 030 00 T037103 DN7370              04/04  15:07
```

Auto Attendant and Call Center station set numbers

When the Auto Attendant answers incoming calls, the station set number reports as the DN of the Auto Attendant. When Call Center answers incoming calls, the station set number reports as the Control DN (CDN) of the Skillset that answered the call.

Advice of charges at end of call (AOCE)

On ISDN ETSI lines only, the cost of a call is available on an SL -1 record. Cost appears in dollars or pulse units. The maximum amount chargeable to an SL-1 account is $999999 or 99999 units.

The following diagram shows an example of end of call with currency charges of $123.45. The amount is rounded down to the nearest dollar.

Figure 19 Sample end of call with charges rounded down

```
N 003 00 DN0285   T181000            07/19  16:43  00:00:02 999
          00000  000123
```

The following diagram shows an example of end of call with currency charges of $123.50. The amount is rounded up to the nearest dollar.

Figure 20 Sample end of call with charges rounded up

```
N 002 00 DN0285   T181000            07/19  17:21  00:00:03 888
          00000  000124
```

The following diagram shows an example of end of call with pulse charges of 456 units.

Figure 21 Sample end of call with pulse charges

```
N 012 00 DN0285   T181000            07/19  17:31  00:00:02 99
          00456  000000
```

The following diagram shows an example of end of call with zero charges.

Figure 22 Sample end of call with no charge

```
N 013 00 DN0285   T181000           07/19  17:33  00:00:04 45678
          00000  000000
```

The following diagram shows an example of end of call with charges not available.

Figure 23 Sample end of call with charges not available

```
N 001 00 DN0285   T181000           07/19  17:43  00:00:02 888
```

Norstar reports

Use Norstar reports when the you assign the Business Communications Manager Call Detail Recording output to a printer or Call Accounting package designed to use the Norstar report.

This section describes the Norstar reports and explains how to interpret the reports.

Norstar report types

The Call Detail Recording supports four different Norstar report types:

- "Norstar Standard reports
- "Norstar CLID reports
- "Norstar Real Time report
- "Norstar All report

Norstar Standard reports

Norstar Standard reports always start with a header line indicating the date (MM/DD/YY) time (HH/MM/SS), LINE field and STN field. The reports have at least one event line showing an event and time stamp. The following diagram shows an example of an Outgoing call in Standard format.

Figure 24 Sample outgoing call

```
--------   04/04/99   11:39:43   LINE = 0003   STN = 7425
00:00:00   OUTGOING CALL
           DIGITS DIALED    5551212
00:00:37   ACCOUNT CODE     87
00:12:59   CALL RELEASED
```

The following diagram shows an example of an Incoming Call in Standard format.

Figure 25 Sample incoming call

```
--------   04/04/99   12:00:01   LINE = 0083   STN = 7726
00:00:00   INCOMING CALL    RINGING 0:32
00:00:39   HOLD
00:01:12   UNHOLD
00:02:47   CALL RELEASED
```

Norstar CLID reports

When you select this option, CLID information received from the Business Communications Manager server for an incoming call prints between the report header and the event lines. There is one occurrence of CLID information per call. A CLID field does not appear in the report when CLID information is not available.

If you need Secondary CLID information, you must configure the Primary Call Detail Recording to receive CLID information. You must configure The Primary Call Detail Recording to print SL-1 CLID report format or Norstar CLID report format.

Note: Call Detail Recording reports CLID information only for lines that are capable of delivering CLID. You must configure the Business Communications Manager server to enable delivery of CLID information.

Norstar report field definitions

The first Call Information line after the header line is the CALLING NUMBER. It contains a maximum of 11 characters. When information is incomplete, one of the following messages appear:

- If the number is truncated the forward slash symbol ‘/’ precedes the digits received.
- If a partial CLID number is received, ‘x’ follows the digits received.
- If the number field does not receive data, ‘UNKNOWN’ appears.

The second Call Information line is the NAME. It contains a maximum of 15 characters.

- If the name field does not receive data, ‘UNKNOWN’ appears.

The third Call Information line is the call type indicating when the call is a long distance call.

- If the call type field does not receive data, ‘UNKNOWN’ appears.

The following diagram shows an example of an incoming call with CLID.

Figure 26 Sample incoming call with CLID

```
--------   04/04/99   11:12:01   LINE = 0013   STN = 7465
           CALLING NUMBER   4032919123
           NAME             UNKNOWN
           UNKNOWN
           BC = SPEECH
00:00:00   INCOMING CALL    RINGING 0:32
00:00:39   HOLD
00:01:12   UNHOLD
00:02:47   CALL RELEASED
```

The following diagram shows an example of an abandoned (no answer) incoming call with CLID.

Figure 27 Sample call with CLID not answered

```
--------   04/04/99   20:30:00   LINE = 0035
           CALLING NUMBER   4032919123
           NAME             UNKNOWN
           UNKNOWN
           BC = SPEECH
00:00:00   NO ANSWER        RINGING 3:15
```

The following diagram shows an example of a call report with CLID number truncated.

Figure 28 Sample call with truncated CLID

```
--------   04/04/99   11:12:01   LINE = 0013   STN = 7465
           CALLING NUMBER   /12345678901
           NAME             UNKNOWN
           UNKNOWN
           BC = SPEECH
00:00:00   INCOMING CALL    RINGING 0:32
00:00:39   HOLD
00:01:12   UNHOLD
00:02:47   CALL RELEASED
```

The following diagram shows an example of a call with only a partial CLID number.

Figure 29 Sample call with partial CLID

```
--------   04/04/99   11:12:01   LINE = 0013   STN = 7465
           CALLING NUMBER   1234567890x
           NAME             UNKNOWN
           UNKNOWN
           BC = SPEECH
00:00:00   INCOMING CALL    RINGING 0:32
00:00:39   HOLD
00:01:12   UNHOLD
00:02:47   CALL RELEASED
```

Norstar Real Time report

Real Time call records are one line long. All Real Time records begin with an asterisk (*) to differentiate them from non-Real Time call records. Real Time records are generated only when CLID Information is available. Real Time records also generate five call states and four Hospitality types.

Call Detail Recording generates the Norstar Real Time report options using letter codes, as shown in the following table.

Table 13 Norstar report options and letter codes

Letter code	Report option
G	Ringing
D	Dialed Number Identification Service (DNIS)
A	Answered
N	No Answer
T	Transfer
R	Released
HV	Hospitality vacant
HB	Hospitality basic
HM	Hospitality mid

The RINGING call state is unique to Real Time records. It indicates a ringing line as soon as Call Detail Recording receives the CLID Information.

The Dialed Number Identification Service (DNIS) record is reported only if the line delivers the DNIS information. If present, it follows the RINGING record.

The following diagram shows an example of a call, ringing with DNIS, answered and released.

Figure 30 Sample call with DNIS

```
*030198 154615 0019           6137635114     John Doe        U G

*030198 154615 0019           6137635114     4037352000      U D

*030198 154623 0019    7832   6137635114     John Doe        U A

*030198 154831 0019    7832   6137635114     John Doe        U R
```

The following diagram shows an example of a transferred call.

Figure 31 Sample call transfer

```
*041197 094105 0003           7692000       Alan Smith      U G

*041197 094105 0003           7692000       7305432         U D

*041197 094111 0003    7344   7692000       Alan Smith      U A

*041197 094156 0003    7440   7692000       Alan Smith      U T

*041197 094414 0003    7440   7692000       Alan Smith      U R
```

You can use the record information to drive external PC database applications, for example, to compile customer information by extracting the CLID data from the Real Time records.

Norstar All report

When selected, this report provides Standard, CLID Information and Real Time records.

The following diagram shows an example of a call record when All is selected. The RINGING records shows the call received time with CLID Information, not the start alert time. The call is answered 15 seconds after the ringing began. It is transferred 25 seconds after it is answered and is released two minutes after it was transferred.

Figure 32 Sample call with Standard, CLID and Real Time information

```
*030298 154920 0022           4037692000    UNKNOWN       D G

*030298 154920 0022           4037692000    8002349876    D D

*030298 154935 0022    7101   4037692000    UNKNOWN       D A

*030298 155000 0022    7169   4037692000    UNKNOWN       D T

*030298 155200 0022    7169   4037692000    UNKNOWN       D R

--------   03/02/98   15:49:20   LINE = 0022   STN = 7101
           CALLING NUMBER   4037692000
           NAME             UNKNOWN
           LONG DISTANCE
           DNIS NUMBER      8002349876
           BC = SPEECH
00:00:00   INCOMING CALL    RINGING 0:15
00:00:20   HOLD
00:00:25   TRANSFERRED

--------   03/02/98   15:50:00   LINE = 0022   STN = 7169
00:00:00   FROM TRANSFER
00:00:00   UNHOLD
00:02:00   CALL RELEASED
```

Auto Attendant and Call Center station set numbers

When the Auto Attendant answers incoming calls, the station set number reports as the DN of the Auto Attendant. When Call Center answers incoming calls, the station set number reports as the Control DN (CDN) of the Skillset that answered the call.

Standard Hospitality record format

The Hospitality record represents four states of room occupancy: vacant, basic, mid and full. Room number lengths range from one to five digits.

The following diagram shows an example of a Standard Hospitality record with room 12345 status set as vacant.

Figure 33 Sample room status vacant

```
--------   23/01/98   23:49:00   STN = 12345
           HOSPITALITY VACANT
```

The following diagram shows an example of a Standard Hospitality record with room 732 status set as basic.

Figure 34 Sample room status basic

```
--------   23/01/98   23:49:00   STN = 732
           HOSPITALITY BASIC
```

The following diagram shows an example of a Standard Hospitality record with room 73 status set to mid.

Figure 35 Sample room status mid

```
--------   23/01/98   23:49:00   STN = 73
           HOSPITALITY MID
```

The following diagram shows an example of a Standard Hospitality record with room 7 status set to full.

Figure 36 Sample room status full

```
--------   23/01/98   23:49:00   STN = 7
           HOSPITALITY FULL
```

Target line/Physical lines

When Target lines are used on digital trunks, the Call Detail Recording reports show both the target line and the physical line number.

The following diagram shows an example of an incoming call on a target line. The target line number is 101 and the physical line number is 38. Station 7466 answers the call.

Figure 37 Sample target line and physical line

```
--------   12/12/97   12:00:01   LINE = 0101   STN = 7468
00:00:00   INCOMING CALL
           LINE = 0038
00:28:33   CALL RELEASED
```

Busy reports

Call Detail Recording produces two types of busy reports:

- Direct Inward Dial
- Target Line

Direct Inward Dial (DID) busy

A call rings busy when the digital line is set up as a DID line requiring receive digits to route the call through the Business Communications Manager server via a target line. If all target line destinations are busy, the unit returns a busy signal instead of routing the call to the prime station set. Call Detail Recording produces a busy report. The following diagram shows an example of a busy call to a set with DID.

Figure 38 Sample busy call with DID

```
--------   03/02/99   15:09:32   LINE = 0235
00:00:00   BUSY
           LINE = 0035
```

Target line busy

A call rings busy when a target line is involved with a call, and a second incoming call tries to use the same line. Call Detail Recording produces a busy report, but does not include the target line information. The following diagram shows an example of a call to a busy target line.

Figure 39 Sample busy call on a target line

```
--------   03/02/99   14:36:02   LINE = 0035
00:00:00   BUSY
```

Call Detail Recording reports busy only if the Business Communications Manager server is programmed to provide busy treatment.

Bearer capability data

When you assign Call Detail Recording to report in the Norstar CLID report format, Call Detail Recording provides Bearer capability information associated with the call. The following diagram shows an example of an incoming call with Bearer capability data.

Figure 40 Sample incoming call with Bearer capability

```
--------   12/03/99   14:36:00   LINE = 0035
           CALLING NUMBER   7355303
           NAME             UNKNOWN
           UNKNOWN
           BC = SPEECH
00:00:00   NO ANSWER        RINGING  0:02
```

Note: This information appears in the Norstar report when the Business Communications Manager server supports Bearer capabilities.

PRI Call-by-call service

When the ISDN Primary Rate Interface (PRI) trunk is installed in the Business Communications Manager server, Call Detail Recording provides PRI Call-by-call service information as part of the CLID call records in Norstar CLID format. The record provides both the service type and service ID for incoming and outgoing calls. The following diagram shows an example of an incoming call using the TIE service with service ID 0 and the corresponding outgoing call using the PUBLIC service.

Figure 41 Sample PRI

```
--------   01/01/98   01:38:00   LINE = 0001   STN = 221
           CALLING NUMBER   6135551212
           NAME             UNKNOWN
           UNKNOWN
           DNIS NUMBER      9772210
           BC = SPEECH
           PRI SERVICE      TIE 0
00:00:00   INCOMING CALL    RINGING 0:00
00:01:35   CALL RELEASED

--------   01/01/98   01:38:00   LINE = 0023   STN = 223
           BC = SPEECH
           PRI SERVICE      PUBLIC
00:00:00   OUTGOING CALL
           DIGITS DIALED    9772210
00:01:35   CALL RELEASED
```

Note: Business Communications Manager only supports PRI with the necessary hardware installation and the PRI trunks configuration to deliver PRI call-by-call service information.

Voice over IP calls

Calls, both incoming and outgoing, that use the Voice over IP (VoIP) protocol appear in the CLID report. The following diagram shows an example of an incoming call using Voice over IP.

Figure 42 Sample incoming call with VoIP

```
--------   12/03/99   14:36:00   LINE = 0035
           CALLING NUMBER   7355303
           NAME             UNKNOWN
           UNKNOWN
           BC = SPEECH
           VOIP CALL
00:00:00   NO ANSWER        RINGING  0:02
```

Dialed number identification service

Certain trunk types support the delivery of Dialed Number Identification Service (DNIS). Call Detail Recording supports the reporting of DNIS as part of the CLID call reports. Both the Norstar CLID and Norstar Real Time format support DNIS reporting. The following diagram shows an example of an incoming call with DNIS information.

Figure 43 Sample incoming call with DNIS

```
--------   01/01/99   01:38:00   LINE = 0001   STN = 221
           CALLING NUMBER   6135551212
           NAME             UNKNOWN
           UNKNOWN
           DNIS NUMBER      9772210
           BC = SPEECH
           PRI SERVICE      TIE 0
00:00:00   INCOMING CALL    RINGING 0:00
00:01:35   CALL RELEASED
```

Note: Business Communications Manager only support DNIS with the necessary hardware installation and trunk configuration to deliver DNIS information.

Call connected digit separator

Normally, Call Detail Recording reports all the digits the user dials to connect a call. The digits can include digits responding to prompts from the Automated Attendants, extension transfer, or voice mail service. To identify the digits dialed to connect the call and digits dialed after the call is connected, you can insert an "!" between them. The following diagram shows an example of an outgoing call with call connected digit separator.

Figure 44 Sample call with digit separator

```
--------   01/01/99   01:38:00   LINE = 0023   STN = 223
           BC = SPEECH
00:00:00   OUTGOING CALL
           DIGITS DIALED    9772210!0132
00:01:35   CALL RELEASED
```

Note: Call Detail Recording cannot differentiate between digits required to connect a call and extra digits dialed before the call is connected. Not all units support the delivery of call connected signals so this feature is not be available for all Business Communications Manager servers.

External call forward

External call forward occurs when an extension is configured to externally forward calls in three different situations:

- Call Forward All Calls (CFAC)
- Call Forward Busy (CFB)
- Call Forward No Answer (CFNA)

When an incoming call is unanswered and externally forwarded, Call Detail Recording reports the call as outgoing. The reports provides the:

- incoming line or extension
- outgoing line
- extension responsible for the external call forward
- reason for the external call forward
- digits dialled

Note: For more information, refer to the Installation and Maintenance Guide that came with your system.

The following diagram shows an example of an Incoming Call on line 0001 being externally forwarded to line 0002. Extension 221 is responsible for the external call forward event.

Figure 45 Sample external call with external call forward

```
--------   12/31/99   11:59:59   LINE = 0001   LINE = 0002
           CALLING NUMBER   4032919123
           BC = SPEECH
           EXT CALL FWD          STN  =  221   REASON  = CFAC
00:00:00   OUTGOING CALL
           DIGITS DIALED   5551212
00:02:47   CALL RELEASED
```

The following diagram shows an example of an internal call being externally forwarded to line 0002. Extension 222 originated the call. Extension 221 is responsible for the external call forward event.

Figure 46 Sample internal call with external call forward

```
--------   12/31/99   11:59:59   STN  =  222   LINE = 0002
           CALLING NUMBER   4032919123
           BC = SPEECH
           EXT CALL FWD          STN  =  221   REASON  = CFAC
00:00:00   OUTGOING CALL
           DIGITS DIALED   5551212
00:02:47   CALL RELEASED
```

Norstar report field definitions

The following diagram shows all of the lines available for printing by Call Detail Recording in the Norstar report.

Figure 47 Standard and CLID report formats

```
0        1         2         3         4         5         6         7
12345678901234567890123456789012345678901234567890123456789012345678901234567890

--------   MM/DD/YY   HH:MM:SS   LINE = XXXX   STN = XXXXXXX
--------   MM/DD/YY   HH:MM:SS   LINE = XXXX   LINE = XXXX
--------   MM/DD/YY   HH:MM:SS   LINE = XXXX
--------   MM/DD/DY   HH:MM:SS
           RECORD RESTART
00:00:00   INCOMING CALL    RINGING 0:00
00:00:00   OUTGOING CALL
00:00:00   NO ANSWER        RINGING 0:00
00:00:00   FROM TRANSFER
00:00:00   INVALID PASSWORD
00:00:00   HOLD
00:00:00   UNHOLD
00:00:00   ACCOUNT CODE     123
00:00:00   BUSY
           DIGITS DIALED    9369552
00:00:00   CONFERENCE       STN2 = 7425
00:00:00   CONFERENCE       LINE2 = 0052
00:00:00   CONFERENCE END
00:00:00   RESTRICTI0N PASSWORD 99
00:00:00 CALL CHARGES = PULSES
00:00:00   CALL RELEASED
00:00:00   TRANSFERRED
00:00:00   FROM TRANSFER
           RECORDS LOST
           LINE = 0015
           BC = SPEECH
           BC = UNRESTRICTED DIGITAL
           BC = RESTRICTED DIGITAL
           BC = 3.1 kHZ AUDIO
           BC = 7 kHZ AUDIO
           BC = VIDEO
           CALLING NUMBER   4032919123
           CALLING NUMBER   /12345678901
           CALLING NUMBER   4032919123x
           NAME             Peter Pan
           LONG DISTANCE
           UNKNOWN
           DNIS NUMBER      4032652300
           PRI SERVICE      PUBLIC
           PRI SERVICE      PRIVATE
           PRI SERVICE      TIE
           PRI SERVICE      FX
           PRI SERVICE      OUTWATS
           PRI SERVICE      SWITCHED DIGITAL
           PRI SERVICE      INWATS
           PRI SERVICE      INTL INWATS
           PRI SERVICE      900
           HOSPITALITY VACANT
           HOSPITALITY BASIC
           HOSPITALITY MID
           HOSPITALITY FULL
           EXT CALL FWD          STN  =  4221  REASON  = CFAC
           EXT CALL FWD          STN  =  4222  REASON  = CFB
           EXT CALL FWD          STN  =  4227  REASON  = CFNA
           VOIP CALL
```

The following diagram shows an example of the lines available for printing by Call Detail Recording in the Real Time report.

Figure 48 Real Time record format

```
0        1         2         3         4         5         6         7
12345678901234567890123456789012345678901234567890123456789012345678901234567890
*MMDDYY HHMMSS LINE  STATION   CLID NUMBER      NAME/DNIS    TYPE EVENT
*030193 154615 0019            6137635122       Alan Smith      U G
*030193 154615 0019            6137635122       4032632300      U D
*030193 154615 0019    7343    6137635122       Alan Smith      U A
*030193 154615 0019    7343    6137635114       Alan Smith      U N
*030193 154615 0019    7343    6137635122       Alan Smith      U T
*030193 154615 0019    7343    6137635114       Alan Smith      U R
*012398 234900         12345                                    H V
*012398 234900         12345                                    H B
*012398 234900         12345                                    H M
*012398 234900         12345                                    H F
```

Norstar Standard and CLID report description

For non-Real time Standard and CLID reports, each line has a maximum of three fields (except for the header line).

The header line has a maximum of five fields:

- The first field always contains eight dashes.
- The second field provides the date the call originated.
- The third field provides the time the call originated.
- The fourth field provides the line being used.
- The fifth field provides the line, or station using the line, from the fourth field.

Call Detail Recording reports calls based on events (change of call states).

- The first field is the time the associated event occurred. The time is an offset from the start time of the call indicated in the header.
- The second field describes the event associated with that call. Events can be either a call state like hold or transfer, or a user action like account code entry.
- The third field is data that further describes the action indicated in the second field.

Printable line descriptions

The following diagram shows an example of a header line indicating the start of a call report, or the continuation of a call report after a transfer. This report can have three, four or five fields. The date and time reflect the date and time the call started. For incoming calls, this is when the call is answered. For outgoing calls it is the time the line is seized. The LINE field is fixed at four digits. The STN directory number (DN) ranges from two to seven digits in length. For Outgoing tandem calls, both the fourth and the fifth field are LINE.

Figure 49 Sample start header line

```
--------   MM/DD/YY   HH:MM:SS   LINE = XXXX   STN = XXXXXX
```

The following diagram shows an example of the line following the header line when Call Detail Recording or the Business Communications Manager server re-starts.

Figure 50 Sample restart line

```
                    RECORD RESTART
```

The following diagram shows an example of the line following the header line (with all five fields), or after the CLID Information. The time in the header line shows when the call is answered. This time minus the ringing duration (the third field) shows when the call starts ringing.

Figure 51 Sample call ringing line

```
          00:00:00   INCOMING CALL    RINGING 0:04
```

The following diagram shows an example of the line following the header line (with all five fields). The time in the header line field shows when the call is initiated.

Figure 52 Sample outgoing line

```
          00:00:00   OUTGOING CALL
```

The following diagram shows an example of the line following the header line when an incoming call is unanswered.

Figure 53 Sample unanswered call line

```
          00:00:00   NO ANSWER        RINGING 0:22
```

The following diagram shows an example of the line indicating when an incoming call receives busy treatment.

Figure 54 Sample busy line

```
00:00:00   BUSY
```

The following diagram shows an example of the line indicating when the call is put on hold or taken off hold.

Figure 55 Sample hold and off hold lines

```
00:00:04   HOLD
00:00:06   UNHOLD
```

The following diagram shows an example of the line indicating the start and the end of a conference. The third party in the conference can be a second station set or a second line as indicated in the third field.

Figure 56 Sample conference start and end lines

```
00:10:32   CONFERENCE       STN2 = 7425
00:12:12   CONFERENCE       LINE2 = 0052
00:12:45   CONFERENCE END
```

The following diagram shows an example of the line indicating when a call is transferred.

Figure 57 Sample call transfer line

```
00:00:00   TRANSFERRED
```

The following diagram shows an example of the line indicating when a call was transferred. It indicates the start of the call at the new station set that received the transfer.

Figure 58 Sample call transfer from line

```
00:00:00   FROM TRANSFER
```

The following diagram shows an example of the line indicating the last state of a call. It is followed by a carriage return and two line feeds so that there is a blank line before the start of the next call report.

Figure 59 Sample end call line

```
00:00:00   CALL RELEASED
```

The following diagram shows an example of the line indicating digits dialed appear in Outgoing call reports. A maximum of 32 digits/characters can appear. If the call connected digit separator option is enabled, an "!" appears between digits dialed before and after the call connects.

Figure 60 Sample digits dialed line

```
                    DIGITS DIALED   XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
                    DIGITS DIALED   123456789!1234
```

The following diagram shows an example of the line indicating when the user or caller enters an invalid password.

Figure 61 Sample invalid password line

```
          00:00:00   INVALID PASSWORD
```

The following diagram shows an example of the line indicating when an account code is entered. Account codes can be a maximum of 12 digits.

Figure 62 Sample account code line

```
          00:00:00   ACCOUNT CODE     XXXXXXXXXXXX
```

The following diagram is an example of the line indicating when a password is entered. The password ID is a maximum of two digits (00-99). The report indicates the password override ID and not the password itself.

Figure 63 Sample password

```
          00:00:00   RESTRICTION PASSWORD XX
```

The following diagram shows an example of the line indicating the last line of a call report if the call states are missed or if a call is missed altogether. It is followed by a carriage return and two line feeds so that there is a blank line before the start of the next call report.

Figure 64 Sample last line

```
                    REPORTS LOST
```

The following diagram shows and example of the line identifying the physical line of an incoming call on a target line. The line number is fixed at four digits (with leading zeros).

Figure 65 Sample physical line

```
                     LINE = XXXX
```

The following diagram shows an example of the lines indicating when CLID information is available. The calling number shown can be a maximum of 12 characters of which a maximum of eleven can be digits. If a number received by the Business Communications Manager server is longer than eleven digits, then a "/" is the first character, followed by the eleven least significant digits. The name can be a maximum of 15 characters. Each of the number and name can show "UNKNOWN". The third line is the call type. It shows either "LONG DISTANCE" or "UNKNOWN" if call type information is not available. The DNIS number, if available, appears after the call type. It is followed by the Bearer Capability. The last line is the PRI Call-by-call service which appears only when the PRI service information is available.

Figure 66 Sample CLID information

```
                    CALLING NUMBER   XXXXXXXXXXX
                    NAME             XXXXXXXXXXXXXXX
                    UNKNOWN
                    DNIS NUMBER      XXXXXXXXXX
                    BC = SPEECH
                    PRI SERVICE      TIE XXXXX
                    VOIP CALL
```

The following diagram shows an example of the lines indicating when the room occupancy status of room 12345 changes to vacant.

Figure 67 Sample room status

```
            --------   23/01/98   23:49:00   STN = 12345
                       HOSPITALITY VACANT
```

The following diagram shows an example of the line indicating when a call is externally forwarded. Extension 221 is responsible for the external call forward event.

Figure 68 Sample external call forward

```
                    EXT CALL FWD          STN  =  221   REASON  = CFAC
```

Norstar Real Time record description

The Real Time record is one line long beginning with an asterisk (*) to differentiate it from other Norstar records. This record contains eight fields:

- date in MMDDYY format
- time in HHMMSS format
- line number associated with the call
- station set number associated with the call
- CLID number
- CLID name or DNIS number
- call type
- call state

The date field is a fixed length of six digits (MMDDYY). The month, day or year are preceded by a leading 0 to keep the field length fixed. For example, 010501 is January 5, 2001.

The time field is a fixed length of six digits (HHMMSS). There are no separators between hour, minute and second.

The line field shows the call being tracked. The line is fixed at four digits and can have leading zeros. For example, 0019 is line 19. As the Real Time Hospitality record does not use the third field it does not contain any characters and appears blank.

The station set number field shows the station set associated with the call. Station set numbers range from two to seven digits. If the number is less than seven digits there are no leading zeros because this field is not fixed. In the Real Time Hospitality record this field shows the room number. Room numbers range from one to five digits.

The CLID Information field shows the calling number. The number is a maximum of 12 characters (11 digits maximum and the "/" and "x" character). There is always information in this field. If no number is available, either UNKNOWN or PRIVATE appears in this field. As the Real Time Hospitality record does not use this field it appears blank.

The CLID name or DNIS information field shows the name. The name is a maximum of 15 characters. If no name is available, UNKNOWN appears in this field. DNIS information in "D" records replace this field. The DNIS is a maximum of 10 digits. In the Real Time Hospitality record this field shows the room occupancy status indicator.

The CLID call type field shows either long distance (D) or unknown (U) status.

The call state field of the Real Time record always contains a call state indicator, and is followed immediately by a carriage return and two line feeds.

Real Time Hospitality record format

The Real Time Hospitality record represents four states of room occupancy:

- vacant
- basic
- mid
- full

Room number lengths range from one to five digits.

The following diagram shows an example of a Real Time Hospitality record with room 12345 status set to vacant.

Figure 69 Sample room status vacant

```
          *012398 234900        12345                              H V
```

The following diagram shows an example of a Real Time Hospitality record showing room 732 status set to basic.

Figure 70 Sample room status basic

```
            *012398 234900        732                                   H B
```

The following diagram shows an example of a Real Time Hospitality record showing room 73 status set to mid.

Figure 71 Sample room status mid

```
            *012398 234900        73                                    H M
```

The following diagram shows an example of a Real Time Hospitality record showing room 7 status set to full appears below.

Figure 72 Sample room status full

```
            *012398 234900        7                                     H F
```

Advice of charges at end of call

On ISDN ETSI lines only, the cost of a call is available on a Norstar record. Cost appears in dollars or pulse units.

The following diagram shows an example of end of call currency charges of $123.45.

Figure 73 Sample charges in dollars

```
            --------   07/19/00   16:13:11   LINE = 0181   LINE = 285
                       BC = SPEECH
            00:00:00   OUTGOING CALL
                       DIGITS DIALED   54672
                       CALL CHARGE = 123.45 $
            00:00:08   CALL RELEASED
```

The following diagram shows an example of end of call currency charges of 123 Lira.

Figure 74 Sample charges in lira

```
            --------   07/19/00   16:16:56   LINE = 0181   LINE = 285
                       BC = SPEECH
            00:00:00   OUTGOING CALL
                       DIGITS DIALED   98
                       CALL CHARGE = 123 Lira
            00:00:03   CALL RELEASED
```

The following diagram shows an example of end of call pulse charges of 456 units.

Figure 75 Sample charges in units

```
--------   07/19/00   16:28:15   LINE = 0181   LINE = 285
           BC = SPEECH
00:00:00   OUTGOING CALL
           DIGITS DIALED   546
           CALL CHARGE = 456 PULSES
00:00:04   CALL RELEASED
```

The following diagram shows an example of end of call with no charges.

Figure 76 Sample with no charges

```
--------   07/19/00   16:29:40   LINE = 0181   LINE = 285
           BC = SPEECH
00:00:00   OUTGOING CALL
           DIGITS DIALED   55
           CALL CHARGE = 0
00:00:03   CALL RELEASED
```

The following diagram shows an example of end of call with charges not available.

Figure 77 Sample charges not available

```
--------   07/19/00   16:26:13   LINE = 0181   LINE = 285
           BC = SPEECH
00:00:00   OUTGOING CALL
00:00:02   CALL RELEASED
           00:00:02   CALL RELEASED
```

Chapter 4
Install CDR Client application

The CDR Client application allows you to administer remotely the domain and user access to the Call Detail Recording records. You can view and print records. You also control record security.

Note: The CDR Client is supported by the following operating systems:

- Windows 95/98
- Windows 98SE
- Windows NT
- Windows 2000
- Windows Millenium
- Windows XP

To install the CDR Client application:

1. Exit any Windows programs that are running.
2. Disable any anti-virus programs that are running.
3. On the Unified Manager front page, click the **Install Clients** button.
   The Client Install Application page appears.
4. Click the **CDR Client Wrapper** link.
   The Call Detail Recording page appears.
5. Click the **Download CDR Client Wrapper** button.
   A file download window appears.
6. Select **Save this program to disk** and click the **OK** button.
   The SaveAs dialog appears.
7. Choose a location to save this file to and click the **Save** button.
   The file begins downloading.
8. When the file is finished downloading, click the **Close** button.
9. Double-click the **CDRClientWrapper.exe** file.
10. Follow the instructions on the display to complete the installation.

Note: The CDRClientWrapper.exe file installs the CDR Client and the CDR Pull Client.

11. When completed, CDR Client appears under the **Start** menu.

Call Detail Recording display

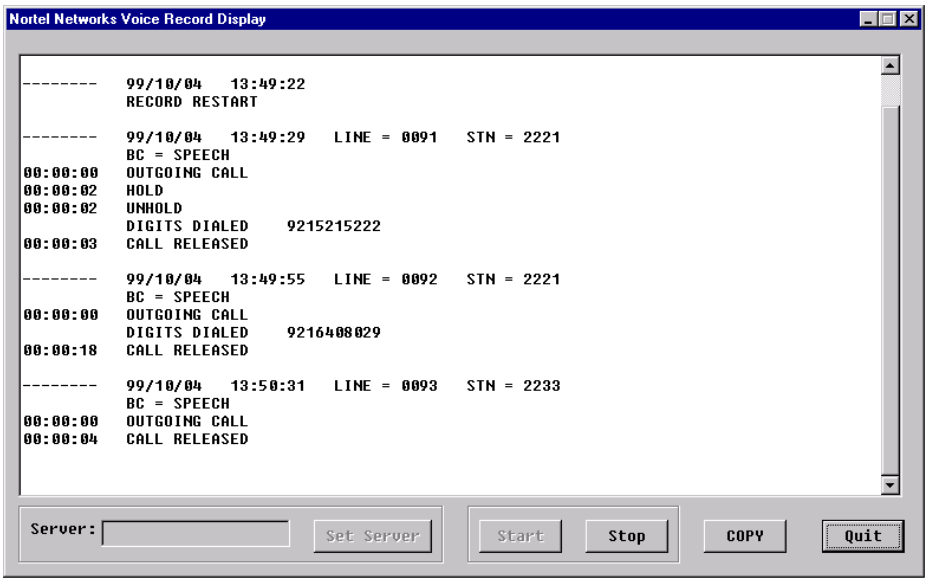
CDR Client allows you to monitor records remotely as calls occur. To access CDR Client:

1. Click the **Start** button and point to **Programs**.
2. Point to **Nortel Networks** and then point to **CDR Client**.
3. Click **CDR Client**.
   The CDR Client window appears.

The CDR Client window

Using CDR Client you can view and print records. Figure 78 shows an example of the CDR Client window.

Figure 78 CDR Client window



To use CDR Client:

1. Type the server name to connect to the Business Communications Manager server.
2. Click the **Set Server** button to apply the name.
3. Click the **Start** button to view call activity records.

Note: If you do not know the server name, ask your System Administrator.

The CDR Client maintains a limited number of records. New records replace old records after the buffer is full.

4. Click the **Stop** button to stop viewing call activity records.

To print records as you view them:

1. Select the record you want to print or right click on the mouse to Select All.
2. Click the **COPY** button or right click on the mouse to copy the record to the clipboard.
3. Paste the record into a text application such as WordPad or Notepad.
4. Print the record.

Note: All records are maintained on the Business Communications Manager server. Use Business Communications Manager Unified Manager to obtain records and print files.

Call Detail Recording Record Security

The records from Call Detail Recording are sensitive in nature. Communication among top executives and external companies, telephone banking passwords, long distant PIN codes, etc. are some of the examples that require protection from unauthorized access. With the introduction of network real time access in Call Detail Recording, the System Administrator must setup the system to protect against unauthorized access.

To access the Call Detail Recording records, you must log on to the Business Communications Manager system using a user name and password that is a member of the CDR User Group. Members of other User Groups, including the Admin User Group, cannot access the Call Detail Recording records.

To guard against unauthorized access to Call Detail Recording records, you must add only the authorized users to the CDR User Group. In this configuration, the Business Communications Manager security protects all records against unauthorized access.

CDR Group User Administration

By default, the CDR User Group has no members. The System Administrator can add users to the CDR User Group using the Unified Manager. The System Administrator can also modify user access privileges or delete existing user names from the group.

For information about how to add, delete and modify users and User Groups, refer to the *Programming Operations Guide*.

Note: If you enable the Callback feature, the computer you are using to access the Call Detail Recording records must have the telephone number that is in the **Callback Number** box. If Callback Number is not telephone number for your computer, Business Communications Manager will block access the records even if the correct user name and password are used.

CDR User Management additional information

Call Detail Recording Domain User Management, in the previous section, uses a domain server network as an example for the launch permission administration. In addition, the Business Communications Manager server must be registered as a member server of the domain.

The configuration differs for a peer-to-peer network. In this case, the Business Communications Manager server is not registered as a member server in the network.

The group/user accounts must exist in the Business Communications Manager server before the CDR server launches permission administration. The Business Communications Manager server takes responsibility to verify if the users have the right launch permission.

If the remote PC is a Windows NT® workstation, ensure the user accounts in the launch permission list exist on both the server and the client PC with matching passwords. When the user logs in to the remote PC using one of the authorized user accounts, the user has the launch permission to the Business Communications Manager server. The System Administrator can administer local users from Unified Manager by clicking the Management and UserManager keys, and then the Configuration menu.

Note: The domain passwords of the users in the launch permission list must be the same as the passwords in the corresponding Business Communications Manager server user accounts.

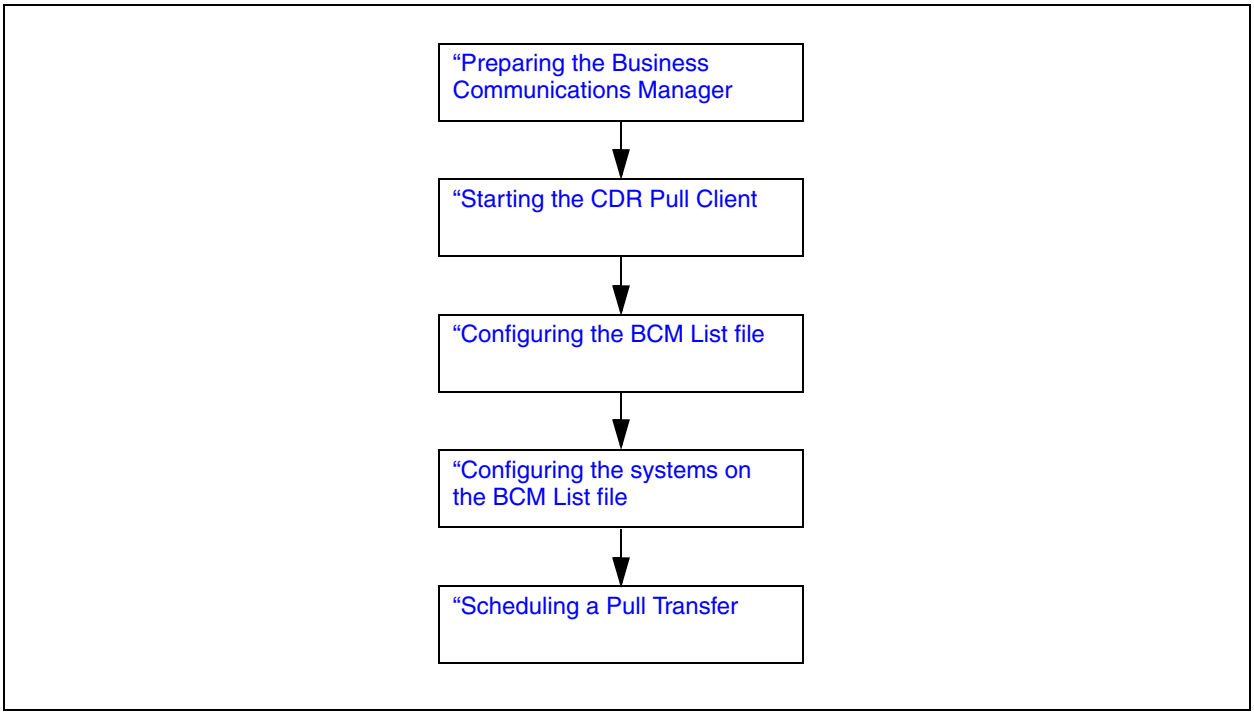
The System Administrator is responsible for ensuring the system configuration is secure.

CDR Pull Client

The CDR Pull Client is a simple application you can use to perform a data file Pull Transfer from a Business Communications Manager system. When you use a Pull Transfer, the CDR Pull Client downloads the Call Detail Recording data files from the Business Communications Manager system.

The following diagram shows the high levels steps required to use the CDR Pull Client.

Figure 79 CDR Pull Client overview


"Preparing the Business Communications Manager
"Starting the CDR Pull Client
"Configuring the BCM List file
"Configuring the systems on the BCM List file
"Scheduling a Pull Transfer

Preparing the Business Communications Manager

Before you can use the CDR Pull Client to collect the Call Detail Recording data files, you must prepare the Business Communications Manager system to accept the Pull Transfer. To prepare the Business Communications Manager system, you must do the following:

- Configure Call Detail Recording so it is collecting the information you want and is formatting the information in the correct report types. For information about configuring Call Detail Recording, refer to Chapter 2, "Configuring Call Detail Recording," on page 17.
- Create a user profile on the Business Communications Manager system that has access to the CDR user group. This is the user profile the CDR Pull Client uses when performing a Pull Transfer. For information about how to create this user profile, refer to "Setting up the Call Detail Recording user account" on page 43.
- Change the TransferType parameter to Pull. For information on setting the TransferType to Pull, refer to "Setting the Data Transfer type to Pull" on page 44.

Starting the CDR Pull Client

1. Click the **Start** button and point to **Programs**.
2. Point to **Nortel Networks** and then point to **CDR Client**.
3. Click **CDR Pull Client**.
   The CDR Pull Sample Application window appears.

Configuring the BCM List file

A BCM List file is a file that stores the connection information for the Business Communications Manager systems you can access using the CDR Pull Client.

To use the CDR Pull Client, you need at least one BCM List file. If you have many Business Communications Manager systems from which you are collecting Call Detail Recording information, it can be beneficial to have more than one BCM List files. By using several BCM List files you can organize a large number of systems into several smaller lists that are easier to manage.

Since you require a BCM List file, you must either create or select a BCM List file before you can perform any other function using CDR Pull Client. For information about how to create or select a BCM List file, refer to the following:

- “Creating a BCM List file
- “Selecting a BCM List file

Creating a BCM List file

The first time you run the CDR Pull Client, you must create a BCM List file. You also create a BCM List file when you want to add another BCM List file.

To create a BCM List file:

1. Click the **Browse** button.
2. Navigate to the folder where you want to store the BCM List file.
3. In the **File name** box, type the name you want to use for the BCM List file.
   The BCM List file is in ASCII text format, so the file name should use the .txt extension (for example, BCM_WEST.txt).
4. Click the **Open** button.

Selecting a BCM List file

When you start the CDR Pull Client, you must select a BCM List file before you can continue. To select the BCM List file:

1. Click the **Browse** button.
2. Navigate to the folder that contains the BCM List file you want to select.

Note: If there is no BCM List file, or if you want to add another BCM List file, refer to “Creating a BCM List file” on page 76.

3. Click the BCM List file you want to use and click the **Open** button.

Configuring the systems on the BCM List file

After you have selected or created the BCM List file, you need to configure the connection information for the Business Communications Manager systems on the list. Configuring the connection information includes the following:

- "Adding a system to the BCM List file
- "Modifying a system on the BCM List file
- "Deleting a system from the BCM List file

Adding a system to the BCM List file

To add a Business Communications Manager system to the BCM List file:

1. Select the BCM List file to which you want to add this Business Communications Manager system.
2. In the **Name** box, type the System Name of the Business Communications Manager system.
3. In the **IP Address** box, type the IP address of the Business Communications Manager system.
4. In the **User ID** box, type the user name for the User Profile you want the CDR Pull Client to use to connect to the Business Communications Manager system.

Note: The user name you must enter in the User ID box is the name you gave the user profile that you created in "Setting up the Call Detail Recording user account" on page 43.

Note: The User Profile you use must be assigned to the CDRUserGroup. For more information about User Profiles, refer to the *Business Communications Manager Programming Operations Guide*.

5. In the **Password** box, type the password for the User Profile you are using.

Note: The password you must enter in the Password box is the password you assigned to the user profile that you created in "Setting up the Call Detail Recording user account" on page 43.

6. Click the **Add** button.
   The name of the Business Communications Manager system appears on the BCM Name list.

Modifying a system on the BCM List file

To change the connection information for a Business Communications Manager system on the BCM List file:

1. In the **BCM Names** list, click on the name of the Business Communications Manager system you want to change.

2 Make the required changes in the **Name**, **IP Address**, **User ID** and **Password** boxes.

3 Click the **Update** button.

Deleting a system from the BCM List file

To remove a Business Communications Manager system from the BCM List file:

1 In the **BCM Names** list, click on the name of the Business Communications Manager system you want to delete.

2 Click the **Remove** button.

Scheduling a Pull Transfer

After you have selected the BCM List file and added Business Communications Manager systems to the file, you can schedule a time and date for the CDR Pull Client to perform the Pull Transfer.

Adding a scheduled Pull Transfer

Scheduling a Pull Transfer includes:

- selecting the Business Communications Manager system
- selecting the time and date
- selecting a location to store the Call Detail Recording data files

To schedule a Pull Transfer:

1 In the **BCM Names** box, select the Business Communications Manager system for which you want to schedule a Pull Transfer.

2 Click the **New** button.
The New CDR Pull Schedule screen appears.

3 Click the **Hour** drop list and select the hour you want the Pull Transfer to start.

4 Click the **Minute** drop list and select the minute that you want the Pull transfer to start.

5 In the **Date** box, click either the Day or the Date you want the Pull Transfer to start.
If you select a day, the CDR Pull Client will perform a Pull Transfer once a week on this day and at the time specified.
If you select a date, the CDR Pull Client will perform a Pull Transfer once a month on this date and at the time specified.

Note: If you want to select more than one day or date, press and hold the **Ctrl** key on your keyboard while you select additional days or dates.

6 Click the **Browse** button.
The Browse for Folder dialog box appears.

7 Navigate to the folder where you want to store the Call Detail Recording data files and click the **OK** button.

Note: You cannot create a folder from the Browse for Folder dialog box. If you want to store the Call Detail Recording data files in a new folder, you must use Windows to create the folder before you select it.

8 If you want Business Communications Manager to compress the Call Detail Recording data files into a single ZIP file before sending the information, select the **Zip CDR files before fetching** check box.
Compressing the file before sending it reduces the amount of time it takes to transfer the information.

9 If you want Business Communications Manager to delete the Call Detail Recording data files after it has successfully sent the files, select the **Delete Downloaded CDR files from BCM** check box.

10 Click the **OK** button.
The New CDR Pull Schedule screen closes and the new scheduled Pull Transfer appears in the Schedule Information box.

Deleting a scheduled Pull Transfer schedule

1 In the **Schedule Information** box, click the Pull Transfer schedule that you want to delete.

2 Click the **Delete** button.
The scheduled Pull Transfer is removed from the Scheduled Information box.

Exiting from the CDR Pull Client

When you have finished adding Business Communications Manager systems and scheduling Pull Transfers, you can exit from the CDR Pull Client. The Pull Transfers that you have scheduled will run even if the CDR Pull Client is closed.

To exit from the CDR Pull Client, click the **OK** button at the bottom of the CDR Pull Sample Application screen.

Glossary

This Glossary provides terms used in the Business Communications Manager Call Detail Recording System Administration Guide.

Account feature code

A three-digit number that enables users to enter a Call Detail Recording account code from a two-line display telephone.

Baud

A variable unit of data transmission speed equal to one bit per second.

Business Communications Manager

Call Detail Recording is an application on your Business Communications Manager system used to record call activity.

Business Communications Manager server

The central hardware component in the Business Communications Manager system. This unit has its own processor and memory, and provides a physical point for connection of various types of data terminals, telephones and expansion modules.

Call Accounting

An optional software program used to analyze the data collected by Call Detail Recording and to organize it according to a company’s needs.

Call report

A type of report created by Call Detail Recording. This report includes information about a call's duration and number dialed. Call report information is collected to itemize telephone activity.

CLASS

Custom Local Area Signalling Services is a collection of services from the local telephone company.

CLID

When available from the local telephone company, Calling Line Identification shows the calling number on the telephone display.

CMS

Call Management Services is a collection of services from the local telephone company. CMS is a part of CLASS.

Default

A value that Call Detail Recording assumes unless another one is specified.

External Call Forward

A Business Communications Manager telephone is configured to forward calls to destinations external to the system using outgoing lines.

Hospitality Record

A type of record created by Call Detail Recording that provides the room occupancy status whether vacant, basic, mid or full.

ISDN

Integrated Services Digital Network is a worldwide digital communications network.

Norstar report format

An English language syntax organization of call reports.

Physical line

The physical connection between the Business Communications Manager system and the outside world.

SL-1 report format

The organization of information that Call Detail Recording data must be translated into before the data it contains is read by an SL-1 call accounting program.

System Administrator

The person responsible for installing, administrating and maintaining Call Detail Recording for a particular company.

Target line

A Target line is a virtual line, not a physical line. It is dedicated to receiving and routing incoming calls on DID or auto-answer trunks to a specific destination.

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